TECHNOLOGY

TELEPHONE and Management ENGINEER

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THE NATIONAL TELEPHONE MAGAZINE

Featuring in This Issue—

- ★ MERCHANDISING - DEFINED, DESCRIBED & DEFENDED, *by T. S. Gary*
- ★ EMPLOYES CAN BE PUBLIC RELATIONS EXPERTS, *by Bill Brooks*
- ★ CARRIER SIGNALING OVER TELEPHONE LINES, *by B. L. Arnold*
- ★ COMMUNITY DIAL OFFICES, *by Ruth E. Richards*
- ★ NEWSLETTERS — INDUSTRY — WASHINGTON — NEWS-IN-VIEWS

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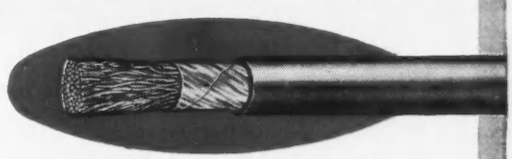

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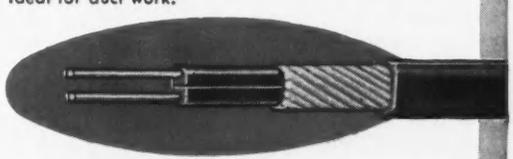

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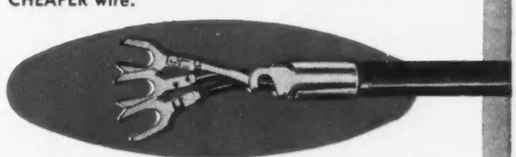

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TENNESSEE: — Hermitage Hotel, Nashville, Sept. 13-14.

ARKANSAS:—Arlington Hotel, Hot Springs, Sept. 17-18.

ROCKY MOUNTAIN: — Utah Hotel, Salt Lake City, Utah, Sept. 20-21.

NORTH CAROLINA:—Carolina Hotel, Pinehurst, Oct. 4 and 5.

USITA: — Conrad Hilton Hotel, Chicago, Oct. 15-16-17.

VIRGINIA—W. VA.:—Roanoke Hotel, Roanoke, Va., Nov. 1 and 2.

S. CAROLINA: — Clemson House, Clemson, Nov. 5-6.

OKLAHOMA: —Huckins Hotel, Oklahoma City, Nov. 7-8.

ALA.—MISS.:—Thomas Jefferson Hotel, Birmingham. Nov. 12-13.

GEORGIA: — Bonair Hotel, Augusta, Nov. 15-17.

FLORIDA: — Daytona Plaza Hotel, Daytona Beach, Nov. 19-20.

TEXAS: Plaza Hotel, San Antonio, Mar. 11-12, 1957.

IOWA: Hotel Fort Des Moines, Des Moines, Apr. 2-3, 1957.

WISCONSIN: (Hotel Not Selected), May 15-16, 1957.

TELEPHONE and Management ENGINEER

A Telephone Engineer Publication

JULY 1956

Vol. 60 No. 7

The National Telephone Magazine

Editor, **RAY W. SMITH** • *Advertising Director,* **ROY F. SMITH**

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FRONT COVER

ANNE MILLER, daughter of BILL MILLER, Secretary-treasurer of the Iowa Independent Telephone Association, is an enthusiastic subscriber of the Chautauqua Park Telephone Co., Des Moines, Ia., which is owned and operated by JAMES MARCUSEN, age 15. For complete story see page 66.

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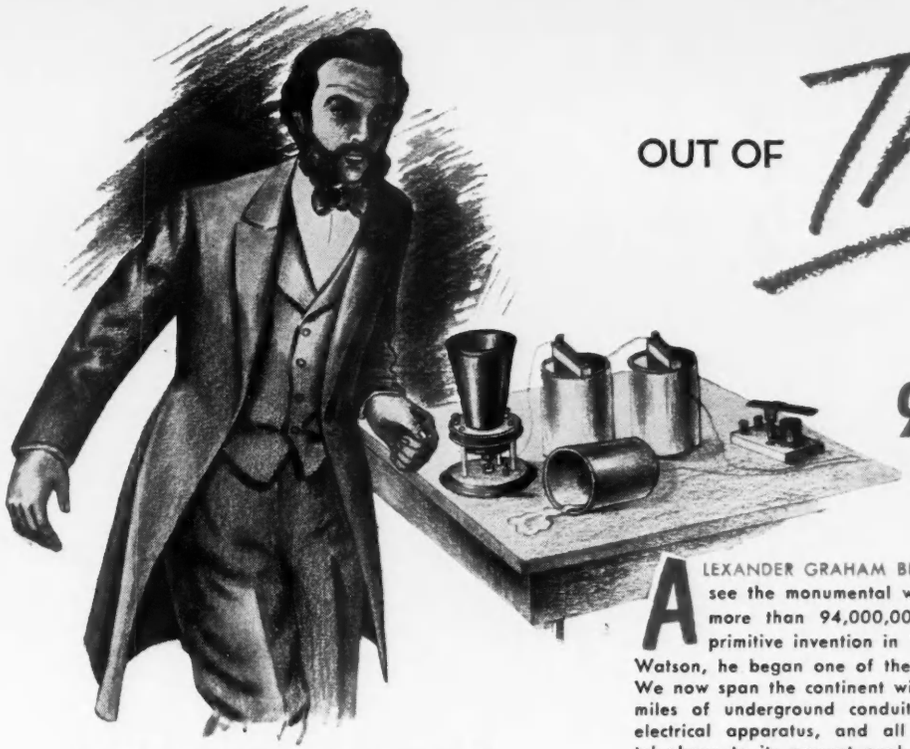

OUT OF *This...*

CAME

94,000,000 TELEPHONES

ALEXANDER GRAHAM BELL would no doubt be astounded if he could see the monumental worldwide network of voice highways, linking more than 94,000,000 telephones, which has resulted from his primitive invention in 1876. Speaking from room to room with Mr. Watson, he began one of the greatest advances in communication history. We now span the continent with our voices, and take for granted all those miles of underground conduits, elaborate and intricate "almost human" electrical apparatus, and all the research that has gone to bring the telephone to its present peak of efficiency.

Much of that "almost human" electrical apparatus is Lorain Products equipment. Its part in the intricate communications system is always a vital one, with the operation of the entire system often depending upon it. Under this responsibility, quality is a "must". We at Lorain are proud of the quality of our equipment, because we know it means better, more reliable service for you and your customers. Quality is never anonymous—invariably it has a famous name—a name that inspires unquestioning confidence. This confidence is yours when you buy Lorain equipment. For two decades this famous name has been the symbol of utmost dependability, and unmatched performance . . . giving lifetime, trouble-free, maintenance-free service to its users. We know that there are exciting possibilities ahead for the telephone industry, that only the surface has been scratched in this business, and we are constantly expanding our production facilities, doing never-ending research; doing our part to meet the challenge and to keep pace with world communications.

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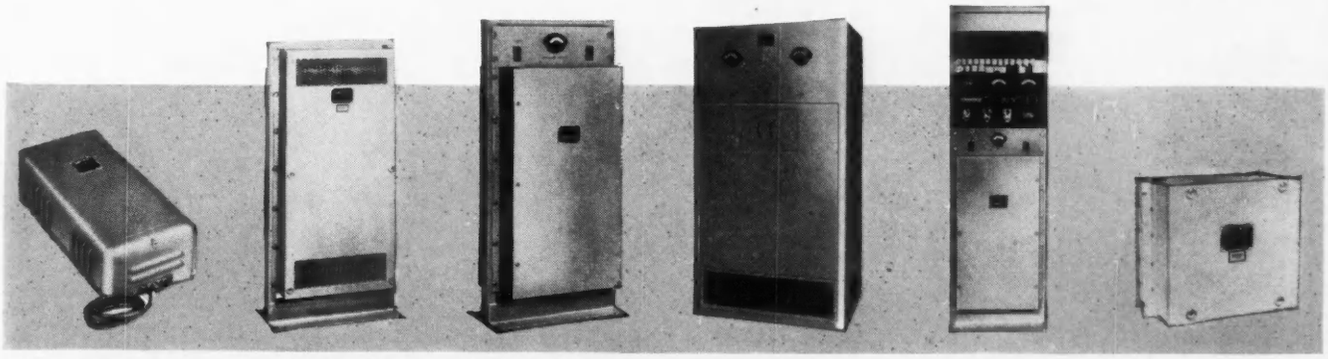

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INDUSTRY SPENDING CONTINUES

EXPENDITURES for construction in communications industry during 1st half of '56 will approximate $1,155,000,000, 39% higher than amount spent in same period of '55, and total almost half of expected construction bill of $2.4 billion for all of '56, according to report issued by Communications Division of Commerce Department's Business & Defense Services Administration.

ACTING DIVISION DIRECTOR, A. J. Falk reported study made of building activity in communication industry shows record $2.4 billion earmarked for construction this year is 29% higher than amount spent in all of '55. Report adds that "continuing heavy demand for service coupled with increased use and general high level of industrial activity has had a corollary effect on the manufacturing industry," which has found it necessary to authorize new construction approximating $63,000,000 for production of all types of communications equipment needed by the operating communications industry.

STUDY HAS ALSO SHOWN that by end of '56 it is anticipated there will be 4,000,000 more telephones in service than at end of '55, and number of households with telephones will approximate 37,360,000, out of a total of 47,800,000 households. Employment in manufacturing industry is expected to increase about 15.5% and in operating industry about 7% over '55. Demands for service and improvements in telegraph communications indicate increase in 1956, as compared to 1955, will approximate 10% for general plant, expansion and improvement, 50% for microwave, 25% for desk-fax, and about 19% for private wire revenues.

THE FUTURE

INCREASING use of electronics in telephony was revealed at the Summer and Pacific general meeting of the American Institute of Electrical Engineers. A. E. Joel, Bell Telephone Laboratories, Whippany, N. J., told a communications switching system session in the Fairmont Hotel that the post-war exploitation of Semiconductor devices, of which the transistor is best known, has not yet had its impact on the art, but most likely will "find greatest application in the information processing field and in communications generally."

SOME OF THE RESULTS of electronic switching systems will be smaller and more compact equipment enclosed in low cabinets rather than in exposed racks, and a change in the power supply, with alternating current with individual rectifiers being used rather than the present direct current distribution system with reserve batteries. Reliability of electronic switching systems is imperative if they are to compete with present-systems, he said, adding that it is necessary to design a system "which will mask the shortcomings of any individual electronic component.

"AS THEIR RELIABILITY is proven an optimum balance will be sought between system redundancy and and component reliability. Telephone engineers familiar only with the high degree of reliability of present-day apparatus will have to accommodate themselves to the characteristics of new electronic devices."

HAMIL NOMINATION CONFIRMED

DAVID A. HAMIL was confirmed by Senate for 10-year term as Rural Electrification Administrator, June 21. Mr. Hamil, Speaker of the Colorado General Assembly, took the oath of office June 25.

CHANGES IN ACCOUNTING REGULATIONS

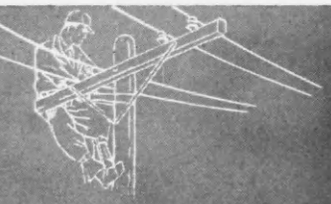
CHANGES IN ACCOUNTING rules for class A and B telephone companies proposed by FCC late last year, were made final by Commission June 20. Action is expected to save companies several hundred thousand dollars annually in bookkeeping costs.

UNDER NEW RULES, construction jobs of authorized gross construction expenditures of under $10,000 could be charged directly to account 100.1, telephone plant service. At present, such jobs are to be completed in less than two months. Upon completion, they are then placed in the telephone plant in service account.

REA LOANS

GRAY-HADDOCK TEL. CO. INC., Gray Ga., serving 423 subscribers through 2 dial offices, received REA approval for $560,000 loan, which will finance expansion program to serve 913 additional subscribers. Company will construct 220 miles of new line, enlarge its

Industry NEWSLETTER



(Concluded From Page 7)

facilities at Gray, Ga., and build new dial office at Haddock . . . *Farmers Tel. Co., Essex, Ia.*, received approval for $252,000 loan. Now serving 583 subscribers, company plans to convert to dial and add facilities for another 24 subscribers . . . *Raphine Tel. Co., Amherst, Va.*, received $250,000 telephone loan to convert its system to dial operation and add facilities to serve 215 subscribers now without service. Company now provides magneto service to 351 rural subscribers over 81 miles of line and switching service to 15 customers. It plans to build 56 miles of new line.

EASTERN TEL. CO., WEST ENFIELD, ME., received second loan of $250,000. First loan was for $208,000. With new funds, company will buy local facilities now serving 430 subscribers and add plant to serve another 190 subscribers, through 2 dial offices . . . *Dodge County Tel. Co., Reesville, Wisc.*, will use proceeds from $213,000 loan to expand and improve its facilities and add 85 new subscribers. Company now serves almost 500 stations . . . *Grand Tel. Co., Jay, Okla.*, now serving 272 subscribers in part-dial, part-magneto system, was given approval for $170,000 loan. It plans to convert to all-dial operation and add facilities for another 112 subscribers . . . *Triangle Tel. Assoc., Havre, Mont.*, was allocated a 3rd loan of $110,000, raising its total to $1,429,000 . . . *Range (Mont.) Tel. Coop.* received $30,000 second loan, boosting its total REA financing to $245,000.

RATE ADJUSTMENTS

GEORGIA PUBLIC Service Commission authorized Seminole Tel. Co., to increase rates at Donalsonville, Jakin and Iron City . . . McLeod County Tel. Co., authorized to increase rates at Glencoe, Plato, Brownton, Silver Lake, Stewart, Lester Prairie and Buffalo Lake, Minn. . . . New rates granted Winthrop (Minn.) Tel. Co., will produce 3.39% return on $106,667 rate base.

EXPANSION & IMPROVEMENTS

BIDS HAVE BEEN LET by George Murphy, manager of the Gorham (Kans.) Tel. Co., for dial central office equipment for the Victoria, Kans. telephone exchange and for construction of a new building. Conversion of the Victoria exchange to dial will be completed in March, 1957 . . . Telephone service at Argonia, Conway Springs, Norwich and Riverdale, Kans., will be converted to dial systems, according to F. H. Gould, Dodge City, Kans., president of the Sedgwick Tel. Co. The Sedgwick company has been awarded an REA loan for $560,000 to complete the purchase of the three exchanges . . . Eustis (Neb.) Tel. Exchange, received authority to borrow money to install dial equipment and authority to increase rates upon dial conversion . . . Indianola (Neb.) Tel. Co., received authority to borrow funds to convert exchange to dial operation . . . Diller (Neb.) Tel. Co., received authority to purchase Odell (Neb.) Independent Tel. Co. and received; (1) a Certificate of Necessity and Convenience; (2) authority to borrow funds from REA for dial conversion; (3) authority to increase exchange rates at time of dial conversion; and (4) authority to discontinue extended area service between Odell-Barnston and Odell-Oketo.

HIGHLIGHTS

BLUE VALLEY TEL. CO., Oketo, Kans., has been granted a charter. The firm was formed as co-operative to serve portions of Marshall County. Capitalization of $30,000 was authorized. Incorporators are E. C. Koeneke, Breman: Paul T. Schotte, Herkimer: Henry Sedlacek and Lynn Collins, Marysville: H. H. Voet, R. D. Breunsbach, and M. H. Kramme, Home.

THE ARKANSAS Public Service Commission's assignment of territory in Columbia County to a telephone co-operative last year has been upheld by Pulaski Circuit Judge J. Mitchell Cockrill. The judge said he found nothing in the PSC order that deprived the town of Emerson or the Union Telephone Company of constitutional rights. The town and Union disputed the PSC's granting of the area to Southwest Arkansas Tel. Co-operative. The area involved includes exclusive service in the town. The Emerson Telephone Exchange, which served the town, sold its system to the co-op.

HARRY G. SCHUEMANN named dist. mgr., United Tel. Co., of Iowa, Harlan, Ia. He succeeds Bob Skow who has been transferred to New Hampton . . . Telephone exchanges at Roxton, Pecan Gap and Ben Franklin, Texas, have been incorporated under the name of La-Del Tel. Co. Mrs. M. S. Larnard, Pecan Gap, Texas, is pres. . . . The Wisconsin Public Service Commission has authorized the Dairyland Tel. Corp., Big Bend, to issue $20,100 of common stock at $25 per share to holders of outstanding common stock.

MRS. JOHN REDING DIES

MARY A. REDING, wife of John F. Reding, general traffic manager of General Telephone Co. of Wisconsin, Madison, passed away in Madison on June 28 after a long illness. She was 51 years of age. Survivors include her husband, a daughter, Rosemary, and a son, John, at home.

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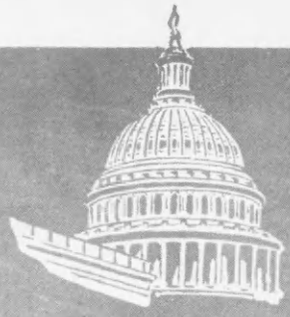

NEW REA ADMINISTRATOR

THE NEW RURAL Electrification Administrator, David A. Hamil, made what appeared to be a favorable impression on one of Washington's most critical audiences — a press conference — a few hours after he took the oath of office for his new job.

NEW AGENCY HEADS frequently make one of two types of mistakes in their maiden comments after they have assumed new jobs. They are inclined either to make snap judgments and off-the-cuff statements in an effort to impress their audiences with their fitness for their new jobs — statements which they often later regret — or they make sweeping generalizations about what they are going to accomplish.

MR. HAMIL DID NEITHER. When asked for his views in a general way, he gave them, but he consistently pointed out that he had been on the job only a few hours, that he had no previous direct association with REA, and he was not going to talk about things he knew little or nothing about. Asked whether he would continue the policies of his predecessor, Anchor Nelsen, Mr. Hamil said in effect that he was not completely familiar with them, and that he would reserve comment on that question until he had an opportunity to inform himself. He did say that "at present" he "has no intention of bringing in further top-level personnel."

DEPUTY ADMINISTRATOR FRED H. STRONG, top holdover official of the agency, remains at least during the transitional period. Mr. Strong was Acting Administrator during absences from Washington of Mr. Nelsen, and Mr. Hamil declared that he, too, plans to do considerable traveling to observe REA activities in the field.

QUESTIONED ABOUT HIS VIEWS of the telephone program, Mr. Hamil commented that he is personally familiar with one REA borrower, the Haxtun, (Colo.) Telephone Co. He said that whether a commercial company or a cooperative provides telephone service is to him a matter of local preference, as he had pointed out a week earlier during his confirmation hearing before the Senate Agriculture Committee. Many Independents have been established for a long period of years, the new Administrator brought out, and "It is pretty difficult to step into a community and throw out a respected citizen."

INCIDENTALLY, A FEW DAYS AFTER Mr. Hamil was sworn in, experienced Washington observers noted something about the organization Mr. Hamil has inherited. It is common practice for agencies charged with spending or lending money — and what one isn't? — to put on a burst of speed immediately before the close of the fiscal year to build up its performance during the year or get rid of all available funds before the new fiscal year begins. REA, which has kept current with its loan backlog to the best of ability, made its last week in fiscal 1956 a routine one. In fact, on June 29, the last working day of fiscal 1956, it issued exactly no loans at all.

LEGISLATIVE VICTORY

ON CAPITOL HILL, one of the biggest legislative victories in years for regulated utilities has been completed with the signature of the new federal-aid highway bill by President Eisenhower, after Congressional action was completed a few days earlier. The utilities did not win a 100% victory in their quest for approval of repayment of their highway relocation costs, but they came close enough to it that forecasters of defeat will be unable to score anything but a complete reversal for themselves. (*See Editorial on page* 29.)

WAGE-HOUR EXEMPTION

IT HAS SEEMED to many Washington observers all during the current session of Congress, including the authors of this column, that there was no particular possibility that the Wage-Hour exemption applying to switchboard operators at exchanges of fewer than 750 stations would be modified this year — although this opinion apparently was not shared by others who flatly forecast an end to the exemption this year.

WHATEVER OUTSIDE POSSIBILITY there might have been for modification of the exemption went out the window, it appears, when Senator Paul Douglas (D., Ill.), who had been conducting rather desultory hearings on broadening minimum wage law coverage, was transferred to the Finance group.

FOR FUTURE YEARS, HOWEVER, it seems obvious that the day of the 750-station exemption is nearly at an end, especially with the spread of dial and the

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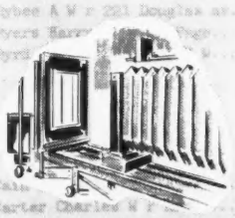

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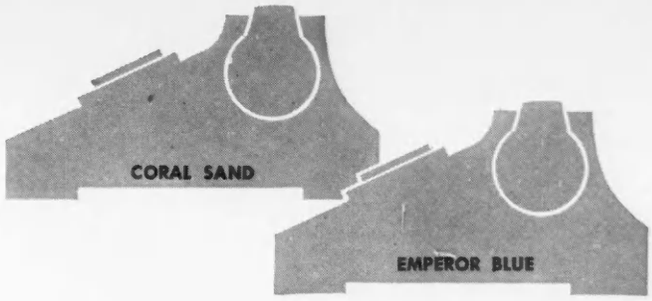
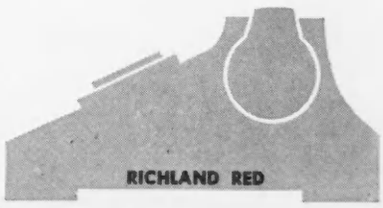
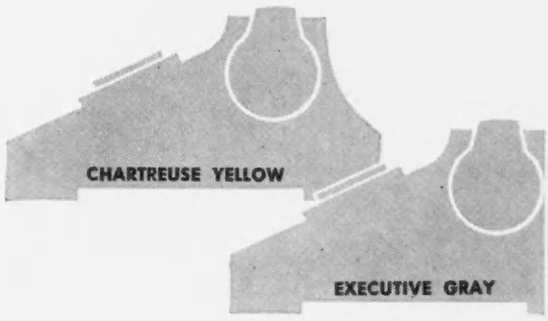
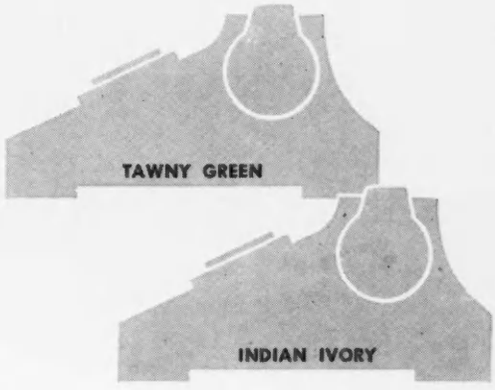
IN COLOR-TONES









Available for delivery NOW from all NORTH warehouses, NORTH N-541 Telephones in 7 dramatic Color-Tones open new avenues of approach for profit producing revenue!

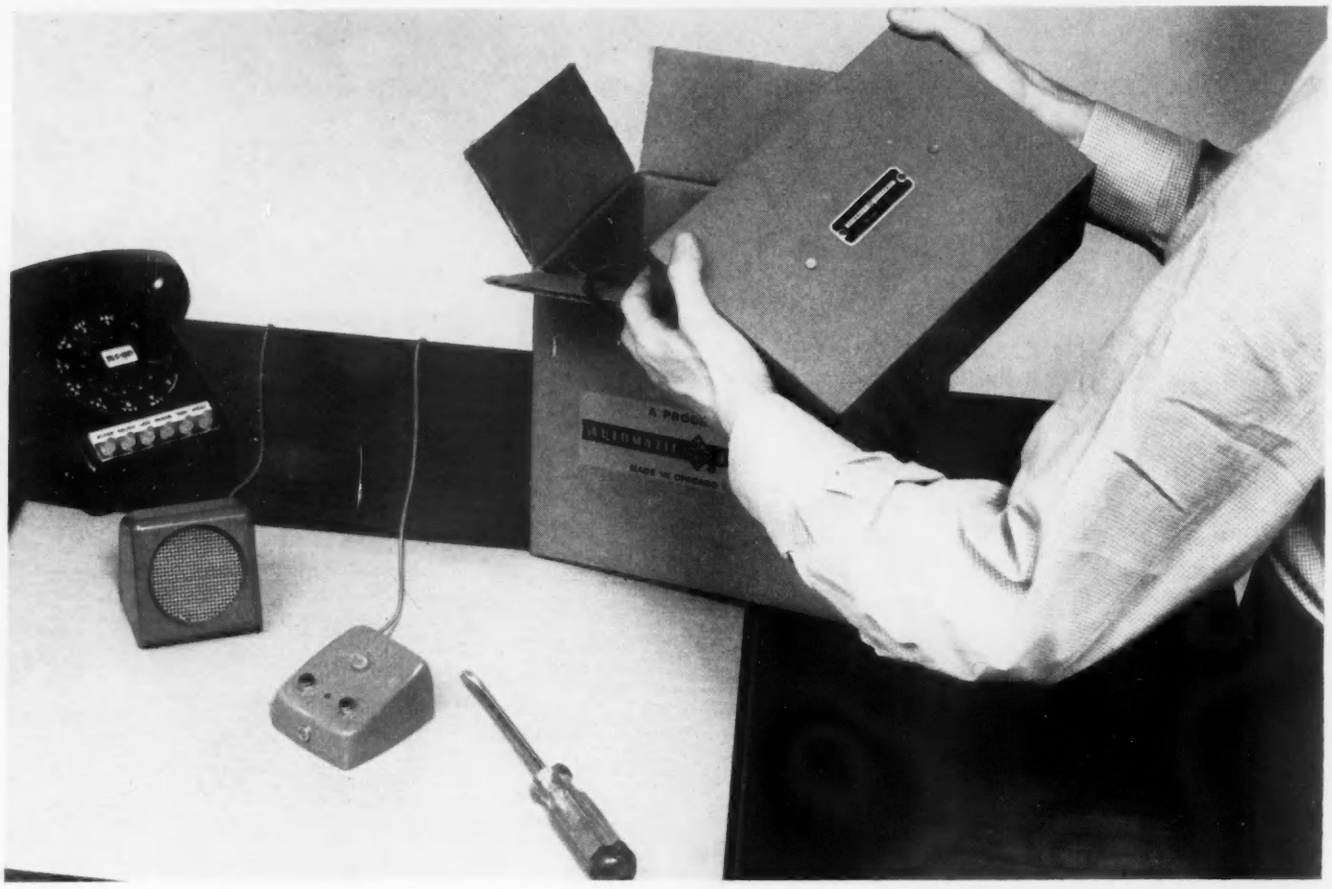
Telephones in Color-Tones have subscriber appeal! Women love the fresh note a colored extension adds to the kitchen, the bedroom, any room in the house! Men appreciate the smart utility of the colored phone blending with the decor of offices and reception rooms.

Extensions become easy to sell to your subscribers with NORTH Color-Tone Telephones.

NORTH will help you build this profit producing extension business. Write for the NORTH merchandising story to discover for yourself how you can increase your company's revenue, your company's profits with NORTH Telephones in color-tones.

NORTH ELECTRIC COMPANY

655 SOUTH MARKET STREET, GALION, OHIO



NEW KIT quickly converts multi-line telephone into loud-speaking instrument

(and Mr. Telephone Man, each Loud-Speaking installation pays better, too!)

With Automatic Electric's new LOUD-SPEAKING TELEPHONE CONVERSION SET, you can convert many Multi-line telephones to Loud-Speaking service, quickly and easily.

"On" and "Off" buttons, volume control, light signal and microphone are contained in an Adapter Unit. The Control Unit and Speaker are separate. All are assembled in an easy-to-install, pre-wired kit. Operation is substantially the same as for the Type 88 Loud-Speaking Telephone.

Offer this revenue-producing service today. Write for Circular 1867. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

Copperweld LINE WIRE

TRADE MARK

keeps upkeep down

When Copperweld* Line Wire goes up, it's up to stay. Non-rusting Copperweld has the permanent high strength to resist even the worst weather conditions year after year. Thus, you get longer service life—lower operating costs. At the same time, you get better talking qualities, because Copperweld has the best electrical conductance of any long-span conductor. What more could you ask for in a line wire?

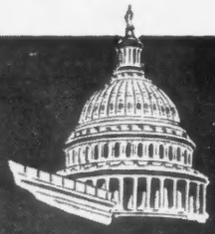
Trade Mark

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION *Glassport, Pa.*

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

SOLD BY LEADING DISTRIBUTORS

Washington NEWSLETTER



(Concluded From Page 10)

consolidation of many small Independents into larger groups. After November's election, it doubtless will be practical to make a fairly accurate prediction as to just when it will go by the boards. At any rate, many of the same observers who were sure that it would not be repealed this year are just as sure that company operators should not bank on it for much longer.

CWA INTERVENES

ANOTHER LABOR RELATIONS matter has cropped up in a less familiar place for such activity — the Federal Communications Commission. Involved in a proposed transaction under which the Southwestern States and Southwestern Bell Telephones Co. would "trade" exchanges at various points in Texas and Oklahoma, with Southwestern Bell to receive 18 exchanges and Southwestern States getting 12. The transaction has been approved by the Oklahoma Corporation Commission, and is now before the FCC for federal endorsement.

THE COMMUNICATIONS WORKERS OF AMERICA has intervened in the proceeding, in attempting to show that persons transferring to Southwestern Bell will suffer particularly because of loss of pension and seniority rights and that employes with long service with the Independent will become "new" employes in Southwestern Bell, except that they will get credit for experience for purposes of the wage progression schedule.

SOUTHWESTERN BELL has taken the position that the questions related to employes is one that should be dealt with in collective bargaining, while the union argues that it should be considered by the Commission in ruling on the proposed transfer.

D. T. STRICKLAND, vice president and general manager of Southwestern States, appeared at the hearing, and referred to a letter sent by his company to CWA which said that the company will bridge the continuous service of employes of the United Telephone Co. (Southwestern Bell subsidiary which is the present operator of exchanges to be transferred to Southwestern States) "so that years of continuous service with that company will mean continuous service with Southwestern States for our pension plan (it is not our intention to buy back-service annuities for this employe group), sickness disability, benefit plan, hospitalization, life insurance, and vacation treatment."

THE HEARING was not completed in one day, and another day's session was scheduled as this column was written.

MILITARY CONSTRUCTION

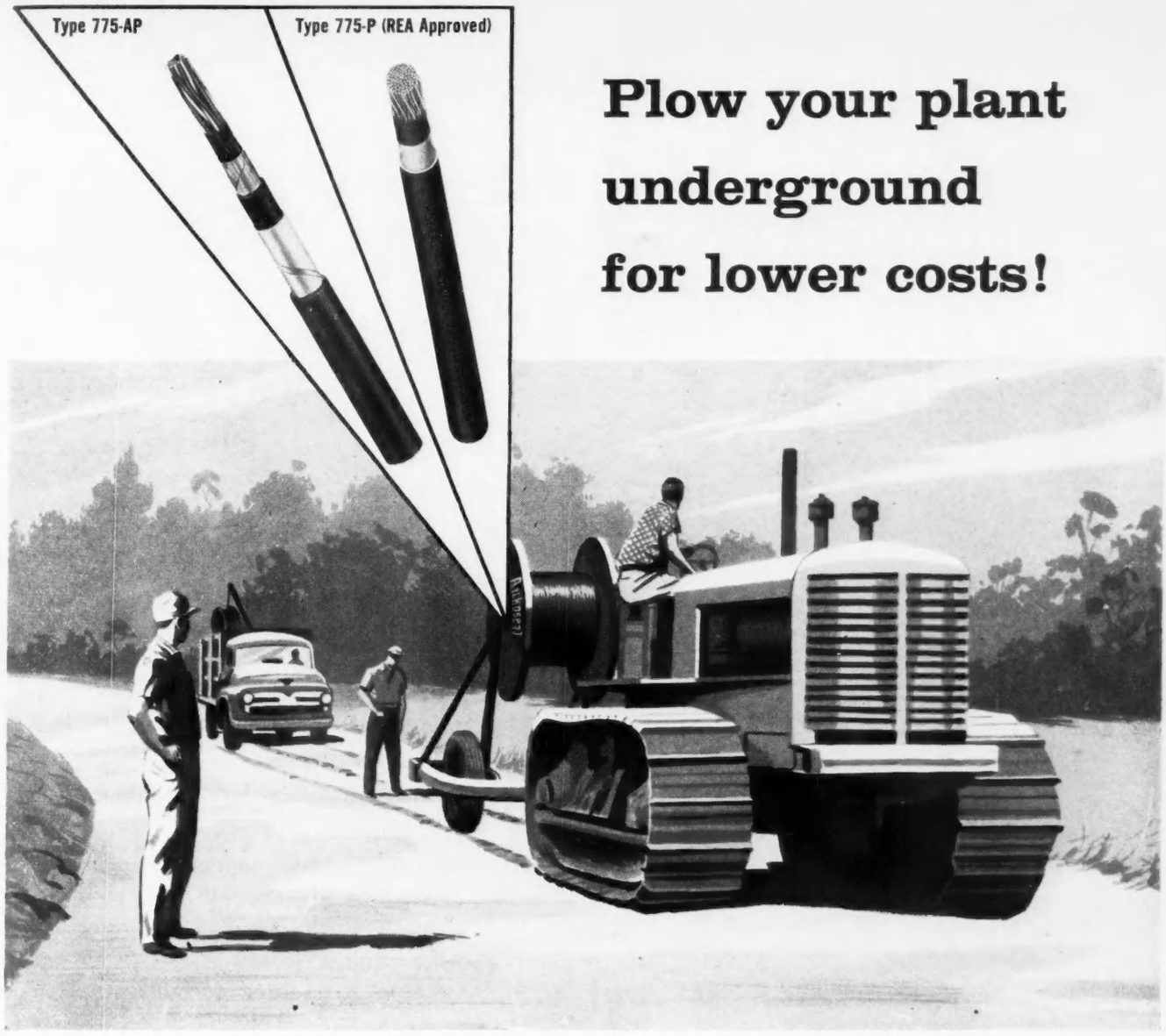
THE SENATE HAS APPROVED a $2.1 billion military construction bill which includes authorization to the Air Force to proceed with contracting for communications services required for the semiautomatic ground environment (SAGE) system of air defense for the continental United States. In its Senate version, the construction bill varies relatively little overall from the bill passed by the House, and the so-called "SAGE amendment" covering contract authorization is almost identical, so that in the House-Senate conference on the bill there is not expected to be any material change.

IN ITS REPORT accompanying the bill, the Armed Services Committee devoted considerable detail to the SAGE program and, after reviewing the contractual requirements and costs for SAGE and the scope of the system, incorporated a letter to the committee from the Air Force which expressed the view that "existing law provides an adequate legal basis for obtaining fair and reasonable rates for both interstate and intrastate communication services in connection with the SAGE project."

THE LETTER WAS IN ANSWER to the question raised at committee hearings as to whether legislation was needed that would give the military better protection and lower rates in carrying out the SAGE program.

IN DISCUSSING THE SAGE PROGRAM, the committee said it "will result in a large increase in the volume of communications services which the Air Force will procure from communications common carriers. In view of this fact, the committee feels that the rates charged for these services should be rigidly scrutinized."

NOTING THAT THE DEPARTMENT OF DEFENSE has intervened in the multi-channel volume rate filing by the Bell System before the FCC — a filing which will have a bearing on rates for SAGE — the committee said it "desired that the Department of the Air Force maintain constant surveillance of the rates charged (for SAGE) and report thereon to the committee semiannually." — *By the editors of "Telecommunications Reports."*



Plow your plant underground for lower costs!

Savings from direct burial of cable are substantial: Roadside burial eliminates expensive right-of-way clearance . . . provides a high degree of protection against storm, fire, and mechanical damage. ANKOSEAL plastic cable makes possible fast, low cost plowing methods. Service reliability is assured with ANKOSEAL — polyethylene insulation resists moisture; jacket is unaffected by soil acids and alkalis, and is not subject to corrosion. Where rugged terrain prevails, ANKOSEAL cable can be furnished with two aluminum alloy armor tapes plus a second overall jacket (Type 775-AP) to provide additional protection. Once buried, ANKOSEAL cable is "out of sight, out of mind" with uninterrupted, trouble-free service.

Type 775-P *has conductors insulated with polyethylene, and is shielded with .004" aluminum tape, jacketed with polyvinyl chloride. Approved by REA under specs PE-14.*

Type 775-AP *is insulated same as Type 775-P with the additional protection of two aluminum alloy tapes plus a second polyvinyl jacket.*

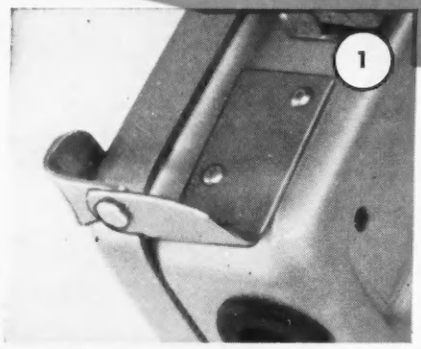
Technical service on specific installation requirements is available upon request from Ansonia.

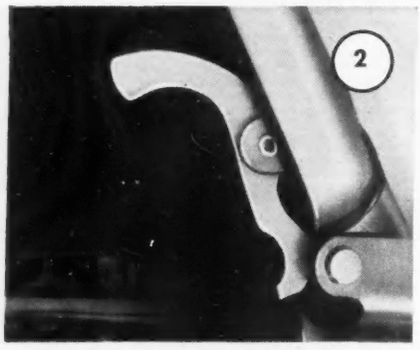
· ANSONIA ·
Ankoseal®
PLASTIC CABLE

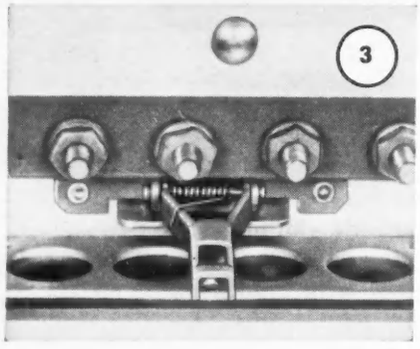
THE ANSONIA WIRE & CABLE COMPANY • 111 MARTIN ST. • ASHTON, R.I.

Stranterm

FIRST SHOWING OF

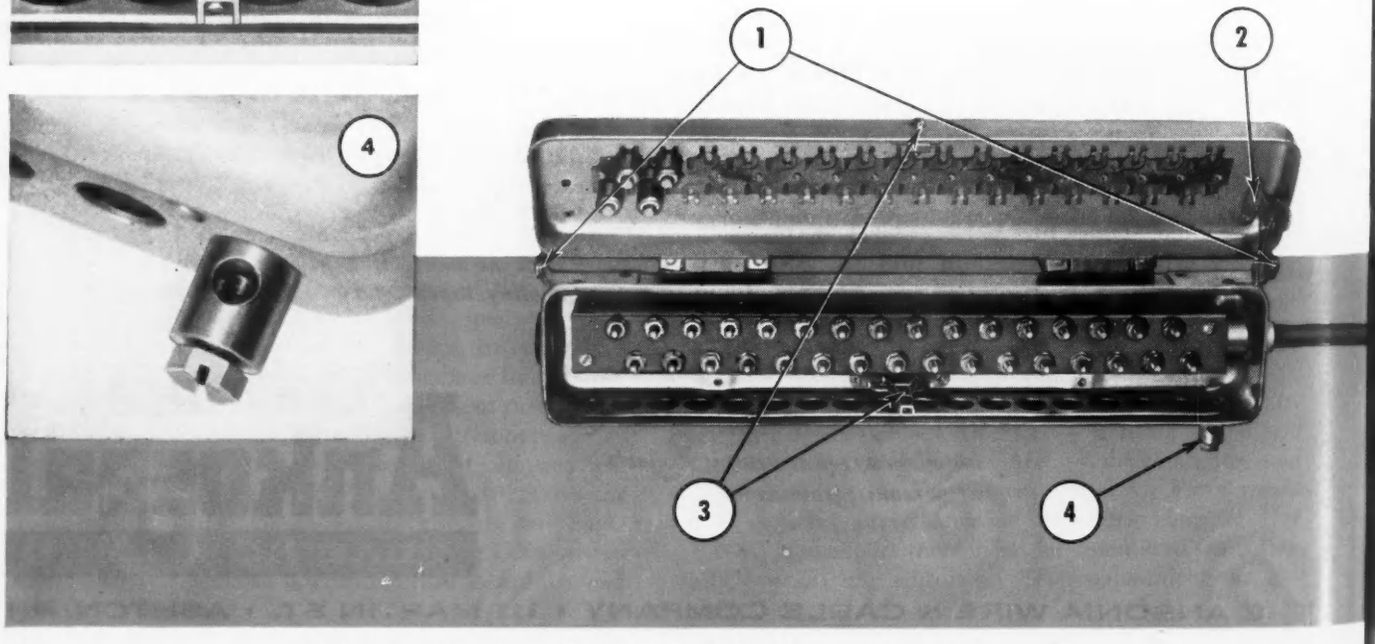






IMPORTANT IMPROVEMENTS WHICH THE 1957 MODELS WILL FEATURE

1. **WIDE ARC COVER HINGE:** Which makes interior of terminal more accessible for servicing. Hinges are of heavy stainless steel construction and reinforced.
2. **AUTOMATIC COVER STOP:** Which holds cover in fixed, open position while terminal is being serviced.
3. **PUSH BUTTON COVER LOCK:** Makes interior of the terminal readily accessible without use of tools and positively locks cover against impact or vibration.
4. **HEAVY DUTY GROUND STUD:** Conveniently located for outside wiring of No. 6 bare or insulated ground wire when applying protection.

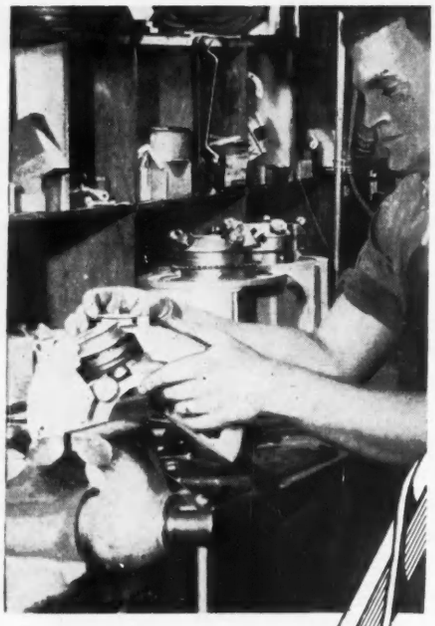


THE 1957 MODEL WITH IMPROVEMENTS FOR THE FUTURE

Distributors will soon be showing the new 1957 Stranterms in three new body styles, and capacities ranging through 6, 11, 16 and 26 pair sizes.

The new Stranterms are provided with an alodized, aluminum alloy, drawn metal body. Door latching members and cover supports are interior positioned. The doors are arranged to lift and set in a raised position while the terminal is being serviced. When ready to close, the latch is released, and the door is "pushed home" where it is rigidly locked. Inland Testing Laboratories tests show this terminal to be weather-proof and rain tight when deluged with water. The terminal is light in weight, easy to install and very convenient for connecting or changing drops. It is furnished with either lead or plastic stubs. Stranterm also features an ingenious bell shaped cable nozzle which eliminates cable breakage due to excessive right angle bends.

The Stranterm is the only Strand Mounted Terminal which may be initially installed unprotected and can later be protected optionally, on a pair by pair basis by the easy insertion of snap-in Minigap or Mytigap Arresters as determined by the outside plant engineers' requirements. We suggest that you try a Stranterm today and investigate the economies and improvements now made possible in your outside plant construction.



COMPLETE REPAIR DEPARTMENT — EQUIPPED TO REPAIR ALL SPINNERS

COMPLETE "PARTS" DEPARTMENT

Parts shipped from stock same day for field repairs

CABLE SPINNING EQUIPMENT CO.

3100 TOPEKA AVE.

TOPEKA KANSAS

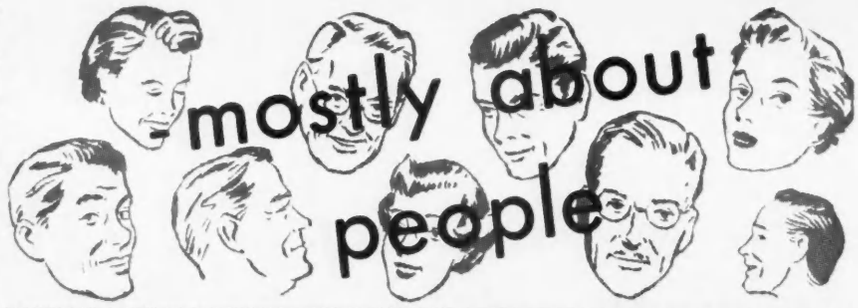
Phone 2-7234

OVERSEAS SALES:

Ericsson Telephone Sales Corp. of New York

Automatic Electric of Canada

Pirelli of Great Britain



ACROSS THE EDITOR'S DESK

Two Valuable Books

WANT TO KNOW something about toll dialing? You had better if you expect to stay in the telephone business!!! "*Nationwide Toll Dialing*" is the title of our Educational Division's latest booklet authored by L. A. Hodson. You may obtain a copy (or copies) at 75¢ each by addressing this magazine. Another of our recent booklets threatens our need of a second printing as "A Guide to Effective Traffic Management Methods," by Ruth Richards has proved to be one of our most popular titles. Copies should be available to all operators in your exchanges and are available at $3 each.

Merle W. De Wees

MERLE W. DeWEES, until July 15 general sales manager of the Ansonia Wire & Cable Co., has resigned to accept an appointment to head the staff of the Connecticut Special Fiscal Study Commission. An 18-man bi-partisan commission is to study Connecticut state operations with a view to recommending economics and improved fiscal policies. Mr. DeWees has made many friends in the telephone industry while with Ansonia and all of them join us in wishing him success and tranquillity in his new mission.

New USITA Folder

"WHY STAND ALONE" is the title of a new folder issued by the United States Independent Telephone Association that Independent telephone folks will find quite interesting. For your free copy address Leon F. Roberts, Director of Information, USITA, 438 Pennsylvania Bldg., Washington 4, D. C.

F. M. Browne

F. M. BROWNE, known to most of us in the industry as *Brownie*, general divisional manager of the Western Light & Telephone Company, passed away June 16 at a hospital in Hannibal, Mo., following an attack of cerebral hemorrhage. Brownie had a service record of 40 years having started in the industry at age 18. He was with the Western company for 32 of those 40 years. A past president and a director of the Missouri Telephone Association, Mr. Browne had also served as president of the Theodore Gary Chapter of the Independent Telephone Pioneer Association. We join the industry in mourning the death of a leader of our great industry.

Missouri Barbecue

THE 4TH ANNUAL barbecue of the Theodore Gary Chapter of the Independent Pioneers was held June 23 at a lake adjacent to Jefferson City, Mo. National president of the Independent Telephone Pioneer Association *Foster B. McHenry*, Jefferson City, served as general chairman assisted by his committee composed of George K. Fitzgerald and George Hearne. The weather co-operated and 122 Pioneers enjoyed a great get-together. Wesley H. Loomis III is president of the Gary Chapter.

50th Anniversary

THE MESSRS Frank S. Carlile and Leon A. Doughty of Pennsylvania were the honored ones on June 18-22 when C & D Batteries, Inc., Conshohocken, celebrated it's 50th Anniversary. These gentlemen are still active in day-to-day affairs of the company which bears their initials. Independent telephone people are quite familiar with the batteries made by this concern and will no doubt want one of the anniversary brochures prepared for this occasion. Copies are available from the company at Washington & Cherry Sts., Conshohocken, Penna.

lead melts fast

in a

Mutual

LP

FURNACE

Automatic's 5 friendly warehouses:

Chicago 7, Illinois.....HAymarket 1-4300
Johnson City, New York..BInghampton 7-8507
Richmond 21, Virginia.....Tel. 6-9280
Kansas City 8, Missouri.....HArrison 1-4720
Portland 10, Oregon.....CApital 3-7244

An 8-inch pot of lead melts in 12 minutes—a fact which enables your men to get the job done quicker—saving both time and money.

There's no pumping required on the Mutual No. 2 Furnace, which burns either propane or butane.

There's no priming. Simply strike a match, open a valve, and, instantly, 2350°F!

There are no tricky adjustments. Only one valve to adjust for high, uniform heat.

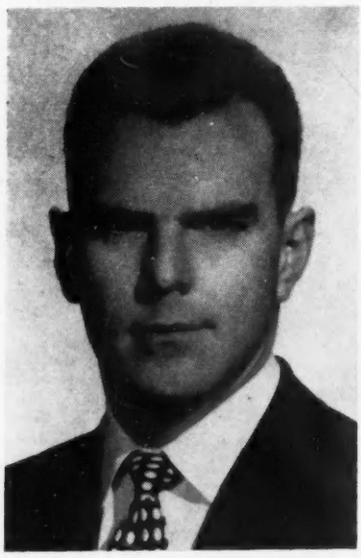
The furnace is portable and accommodates a 6- or 8-inch pot. Mounts on Gas Cylinders, generally the Type 11 (12 lb. cap.), which are refillable at any LP station. Place your order today!

Cat No.	*Description*
S-5372	No. 2 LP Gas Furnace
S-5374	Type 11 LP Gas Cylinder (12 lb. cap.)
S-5375	Type 21 LP Gas Cylinder (20 lb. cap.)

Call your Automatic representative or your nearest Automatic Electric Sales Corporation warehouse today!

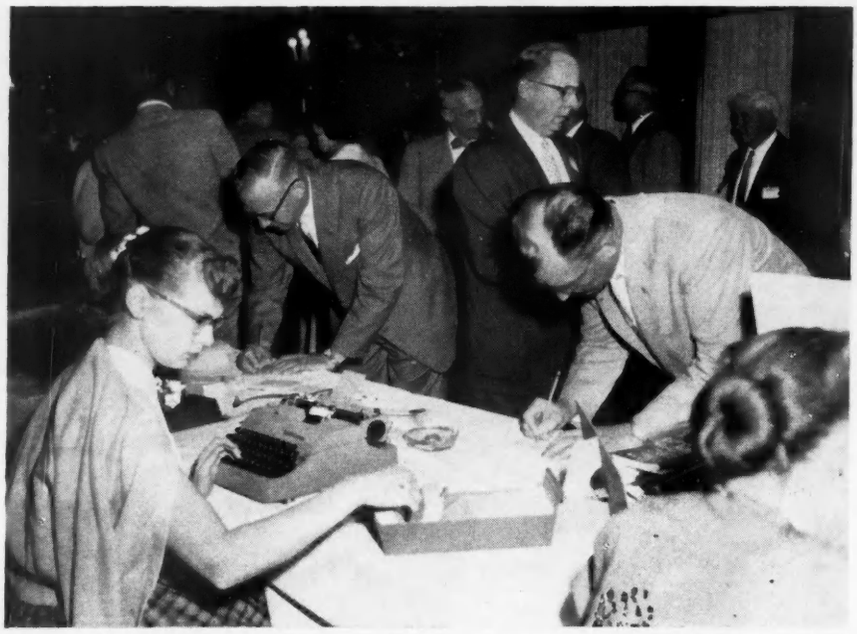
AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE



International Business Machines Corp. has announced the appointment of SAMUEL G. OREN as special representative in the communications dept., with headquarters in New York. In his new post Mr. Oren will assist in the coordination of sales activities and planning of applications of IBM equipment to meet the needs of companies in the communications field.

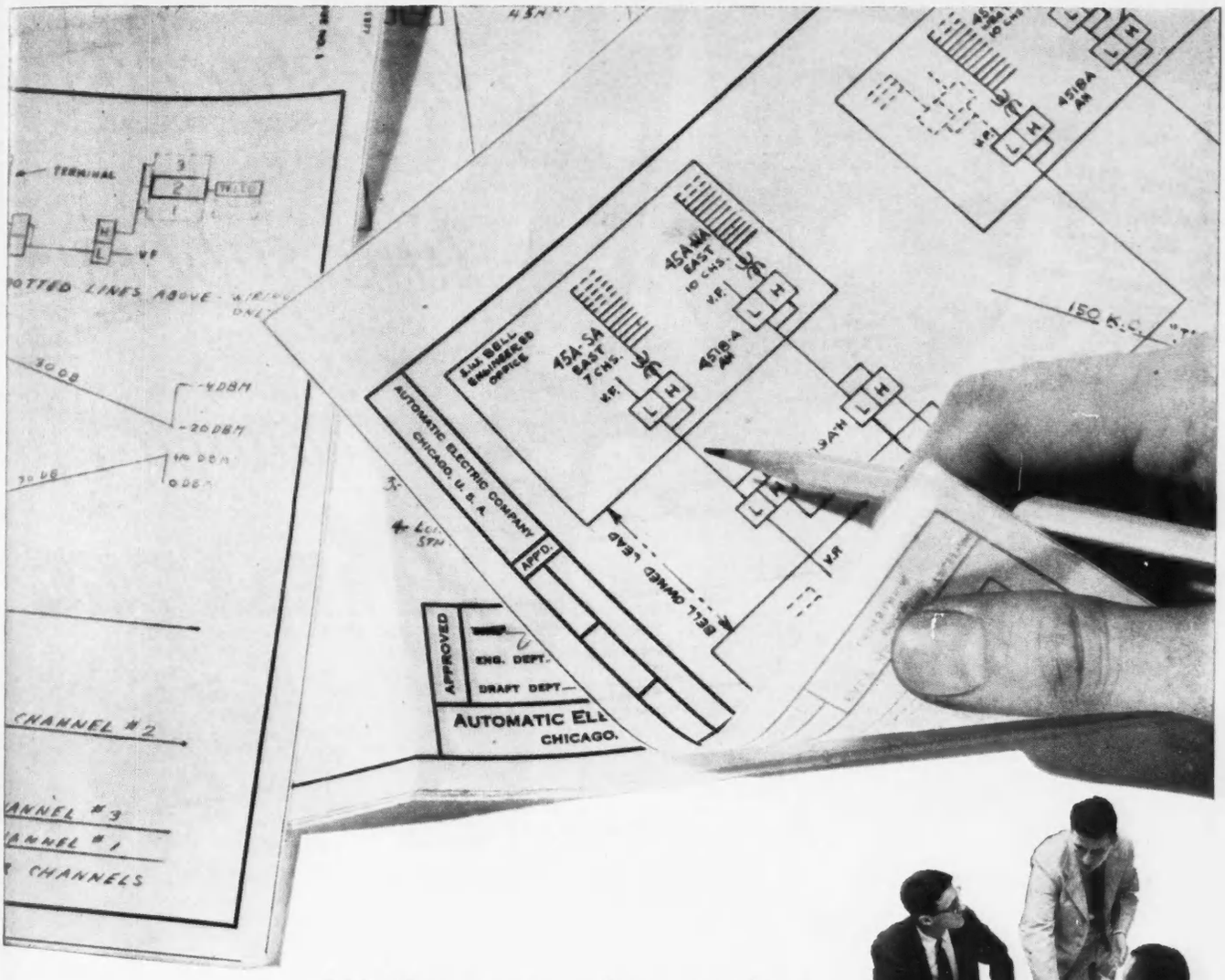
T. L. CALDWELL (r.) presents plaque to FRANK S. CARLILE, left, and LEON A. DOUGHTY, founders of C & D Batteries of Conshohocken, Pa., at surprise testimonial dinner commemorating their 50 years together in business.



Registration desk at 1956 convention of Wisconsin State Tel. Association.

Wisconsin convention guests waiting to be served at main dinner on Wednesday, May 23, Crystal Ballroom, Loraine Hotel, Madison.

After men's pre-convention dinner at Nacoma Country Club in Madison, these men, who were seated at head table, posed for a picture (Seated L. to R.):— HUGH A. BARNHART, v. p., USITA; Commissioner N. J. LESSELYOUNG, Wisconsin Public Service Commission; H. J. O'LEARY—chief of rates & research, Wisconsin Public Service Commission; Standing (L. to R.):— J. F. BENJAMIN, pres., W.S.T.A.; WILLIAM B. PETERSBURG, Jr., Wisconsin Telephone Co.; T. H. MORAN, president, General Telephone Co. of Wis.; J. P. BIGLEY, Viroqua Telephone Co.



Lift the mystery from carrier

with Automatic Electric's **"PACKAGE PLAN"**

Automatic Electric's "Package Plan" makes it easy for you to add carrier equipment in providing the circuits you need, without overloading your engineering and installation staff.

Combined in this "Package Plan" are Lenkurt's "Engineer, Furnish and Install" Service and Automatic Electric's "Follow-Thru" Engineering. Together, these services are all that's required to handle your job—and do it economically.

SPECIFICALLY, HERE'S WHAT WE DO—

Analyze Your Needs. Automatic Electric's "Follow-Thru" engineers study your communications problem and give you a complete over-all plan. If rearrangements are necessary in your present equipment, outside plant, or circuit layout, the most economical way is suggested. The correct carrier equipment for each specific part of the plan is recommended—*and you are told why.* The resulting circuits will function as an integral part of your over-all operations—not as an accessory that is "grafted on" as an afterthought.

Engineer, Furnish, and Install. Each carrier system is engineered to your requirements, pre-assembled, wired and tested by Lenkurt, using the most modern and precise techniques. Lenkurt "E F & I" technicians handle all the details of installation and turn the system over to you, ready to "cut over" for service on the promised date.

Train to Operate and Maintain. Lenkurt engineers will train your men to operate Lenkurt equipment right on the job. They furnish detailed equipment bulletins, line-up and operating instructions, and maintenance techniques.

"Follow-Thru" Engineering always available. Automatic Electric's "Follow-Thru" Engineering Service does not stop with the planning stage, or even with the cut-over; it is available *throughout the life of your Lenkurt Carrier.*

A letter or call will bring an Automatic Electric carrier engineer with all the facts on our "Package Plan". *Write or call* Automatic Electric Sales Corporation, 1033 West Van Buren Street, (HAymarket 1-4300), Chicago 7, Illinois. *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

AUTOMATIC ELECTRIC

Originators of the dial telephone • Pioneers in automatic control

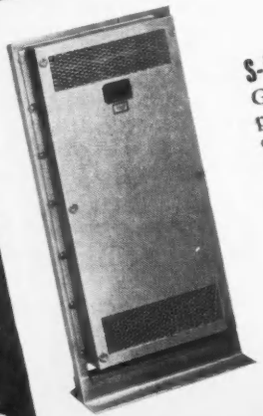
GENERAL SYSTEM INDEPENDENT

All-star cast of line supplies featured by **KELLOGG**

Corrosion-Resistant Crapo Stainless Steel Cable Lashing Wire, Type 430, is available in .045", .065" and .061" diameters. Crapo Galvanized (C Coated) Steel Cable Lashing Wire is available in .091" and .061" diameters. Made by INDIANA STEEL & WIRE CO., INC.

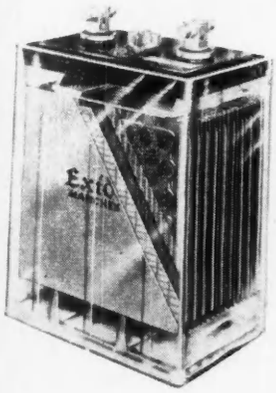
Get Double Value with Roebling lead alloy sheathed telephone cable. Top quality . . . top engineering service. Made with Nos. 19, 22 or 24 A.W.G. conductors, up to 909 pair. Paper insulated conductors, with pairs colorcoded. JOHN A. ROEBLING'S SONS CORP.

Cable Leak Detector —Two models are illustrated. Model at left is for high cables. Nozzles spray cable, air pressure from tanks causes air bubbles clearly seen from ground. S & G MFG. CORP.

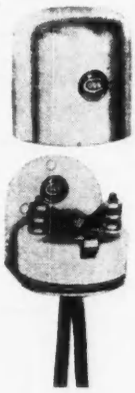


S-5 Sub-Cycle for Synchromonic ringing. Generates 30, 42, 54, and 66 cycles, plus a fifth frequency. Ringing frequencies are locked to the A-C line frequency. Provides maintenance-free operation. Made by LORAIN PRODUCTS CORPORATION.

Preformed Plastic Line Guards. Ideal for protecting covered cables or conductors from abrasion by trees or other objects. Fit securely like metal line guards—are easily installed. PREFORMED LINE PRODUCTS COMPANY.



This Battery Keeps Itself Young for Years. The Exide Manchex Battery has a reserve supply of lead always available to be converted into active material as needed. Hence the unusually long battery life. Exide Industrial Division. ELECTRIC STORAGE BATTERY COMPANY.



Developed for Better Insulation simplified installation and testing, the Cook Testerm Drop Wire Connector occupies less space and improves connecting methods of subscriber drops to open wires. Low in cost and upkeep. Made by COOK ELECTRIC COMPANY.

Kellogg's Standard Outside Plant Handbook now available at special price while quantities last. Reduced to $2.75 a copy with ten or more copies priced at $2.50 each. Every phase of outside plant telephone pole line construction is covered in book.

Everything that Kellogg ships is a star in its field. Each item has passed a rigid "screen test" and proved that it can perform well under the most difficult conditions.

Your order is shipped to you promptly from a point near you. There are 7 warehouses and more than 100 supplier distribution points across the nation.

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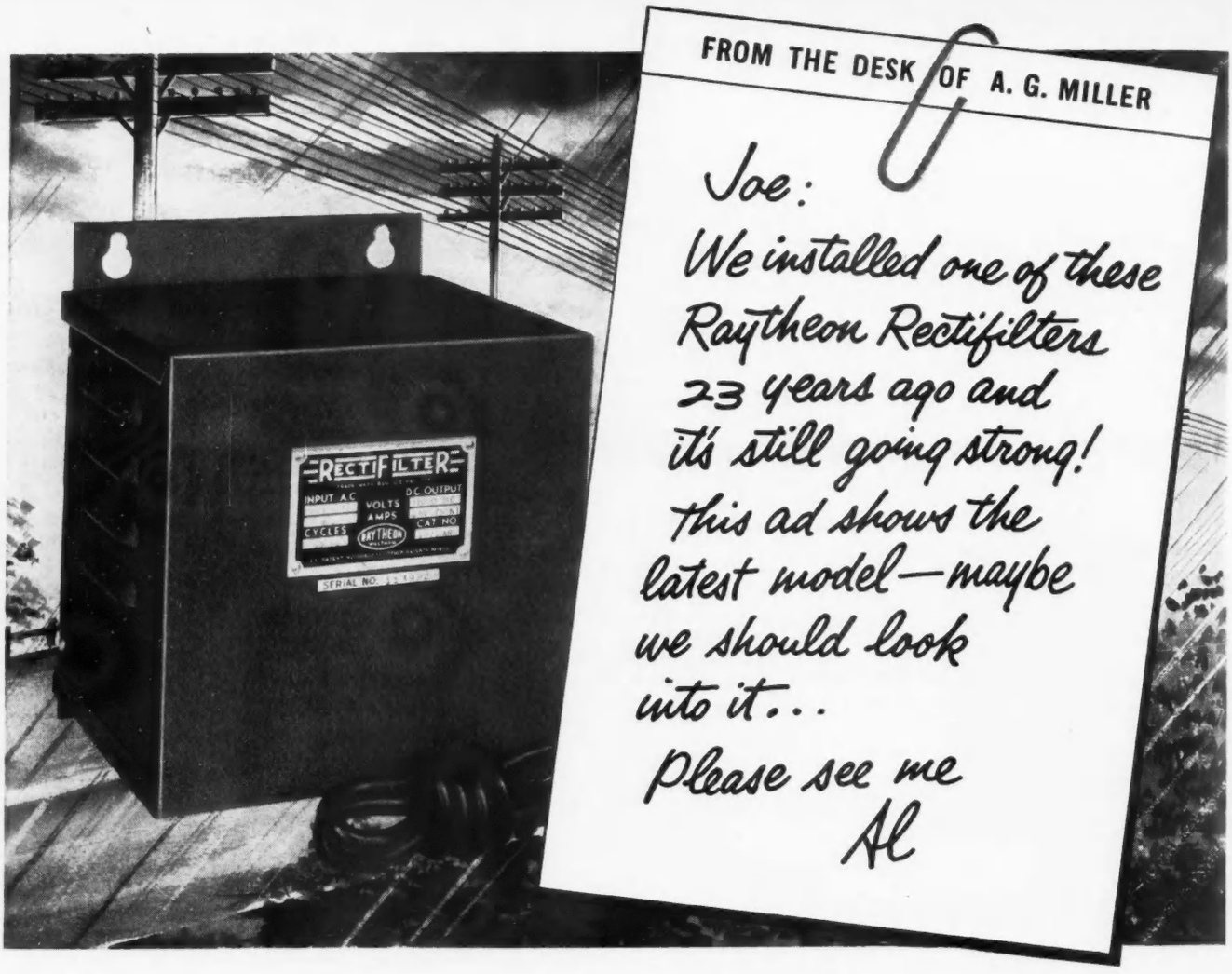

FROM THE DESK OF A. G. MILLER

Joe:
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Raytheon products for the telephone industry include Rectifilter battery eliminators, Recticharger® battery chargers and Rectiringer® eliminators with 20 cycle ringer—all available from your telephone supply house and Raytheon District Offices. Service and parts are supplied from ten locations throughout the USA. For full details, please write for Bulletin 4-335.

CHECK THESE IMPORTANT FEATURES

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- √ Ideal for seasonal installations

RAYTHEON MANUFACTURING COMPANY

Equipment Marketing Department, Waltham 54, Mass.

RAYTHEON

Excellence in Electronics

A 4019

"One Job Done—42 To Go"

LOOKING BACK on events occurring during the first half of 1956 it seems to us June 26 and June 29 might well take their places as dates all utilities should remember.

Our reasons for selecting these dates may be found in the facts that: (1) on June 26 a description of the intent of Congress, spelled out by the joint House-Senate conference committee in its report on the Federal-Aid Highway Bill (H. R. 10060), was the final legislative chapter in the utility reimbursement story; and (2) on June 29 President Eisenhower put his signature on the Highway Bill and made it part of the law of the land.

Thus, after a long period during which the reimbursement portion of the Highway Bill was an on-again, off-again measure, H. R. 10060 *does* contain provisions to reimburse telephone companies and other utilities for their facility removal costs.

As we pointed out in our editorial "*Time To State Your Position*" (*Fortnightly Telephone Engineer, May* 1, 1956) passage of the Highway Bill without the reimbursement provision would have represented a real threat to Independent telephone companies and the subscribers they serve.

In reporting formally the final version of the highway bill the conference committee gave evidence of its recognition of this fact when it pointed out that:

"*Section* 113 *of the bill as passed by the House and recommended and accepted by the conferees recognizes the equity of reimbursing utilities for the cost of relocating facilities when required for federal-aid highway projects. Further, this section makes it clear that it is the intention of the federal government to assume its proportionate share of utility relocation costs whenever a state allows such costs.*"

Further proof of the committee's awareness of the plight of all utilities is found in the language of the conference committee dealing with utility reimbursement.

We believe the true significance of the victory of the State and National Telephone Associations and the many industry members who worked hard and long in support of the reimbursement provision, lies in the survey of a few years ago which showed that non-reimbursed relocation costs of utilities were running about 1.6% of total road construction bills. Without allowing for the fact that relocation costs more proportionately in the type of construction which will predominate in the new interstate system, applying the 1.6% ratio to the $50-billion-plus highway program voted by Congress results in potential non-reimbursed costs nearing a billion dollars, of which communications companies customarily pay around one-third.

With these facts in mind we believe the industry owes a vote of thanks to USITA officers, its Committee on Highway Relocation Costs, the State Associations, special State committees, and individual operating men who did their part to insure passage of the Highway Bill with its reimbursement provision.

However, a big job still remains to be done. There are 42 states in which implementing legislation will have to be enacted in order to make the federal reimbursement provisions mean anything. It is apparent that now is the time for the State Associations and individual Independent companies to begin laying plans looking toward satisfying state legislatures as to the merits of legislation at the local level. Without such activity the progress made to date could come to a standstill.

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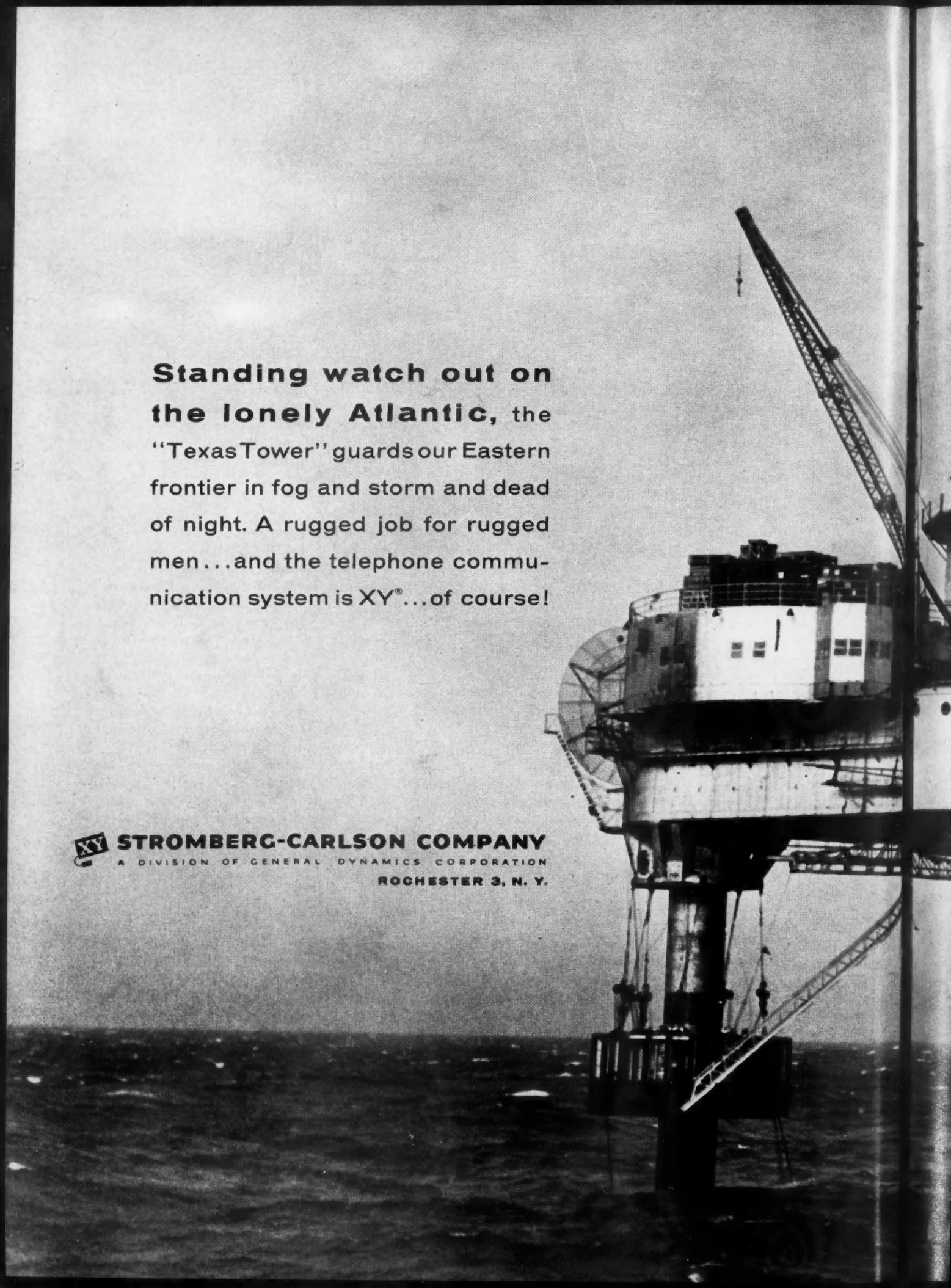
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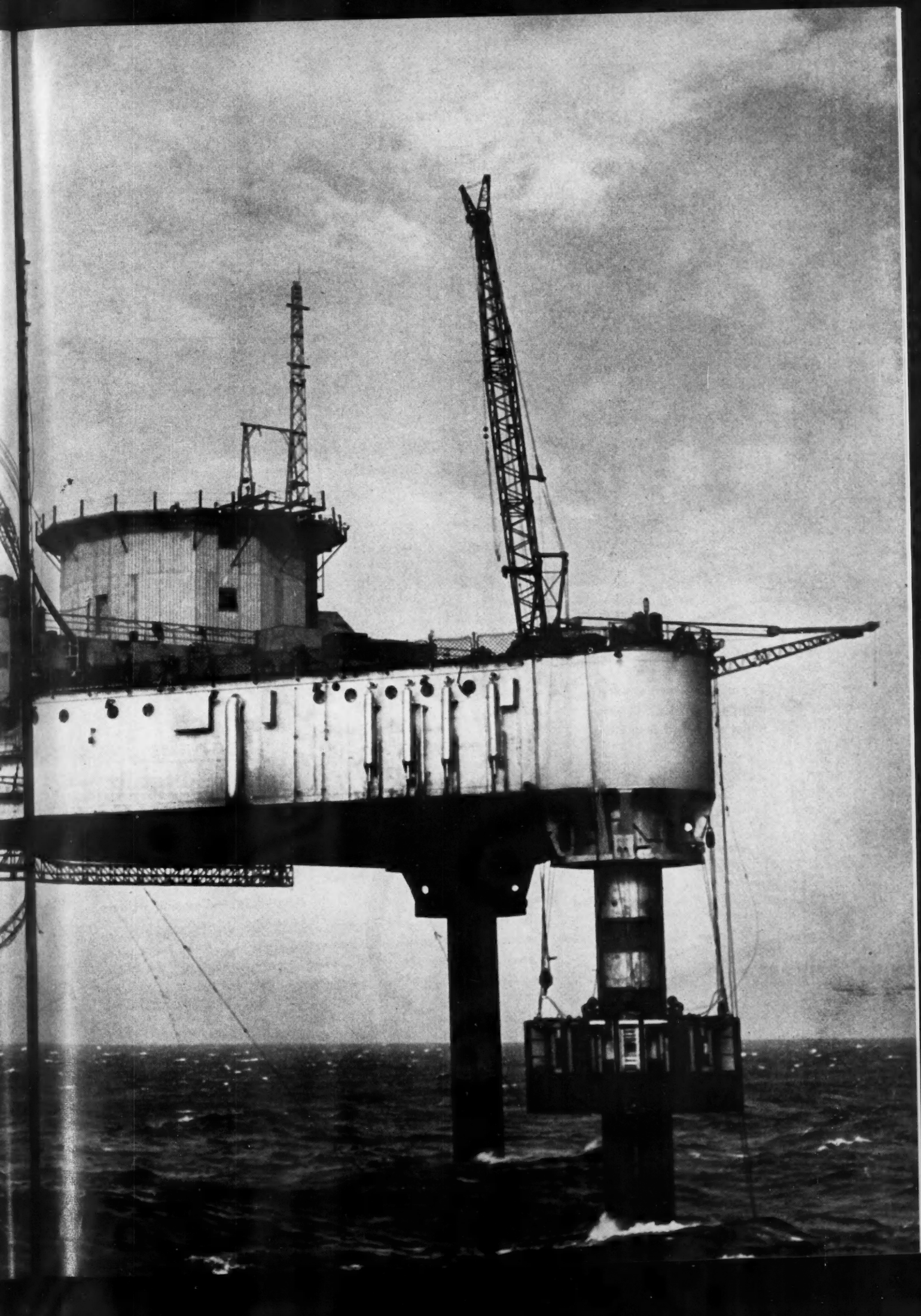

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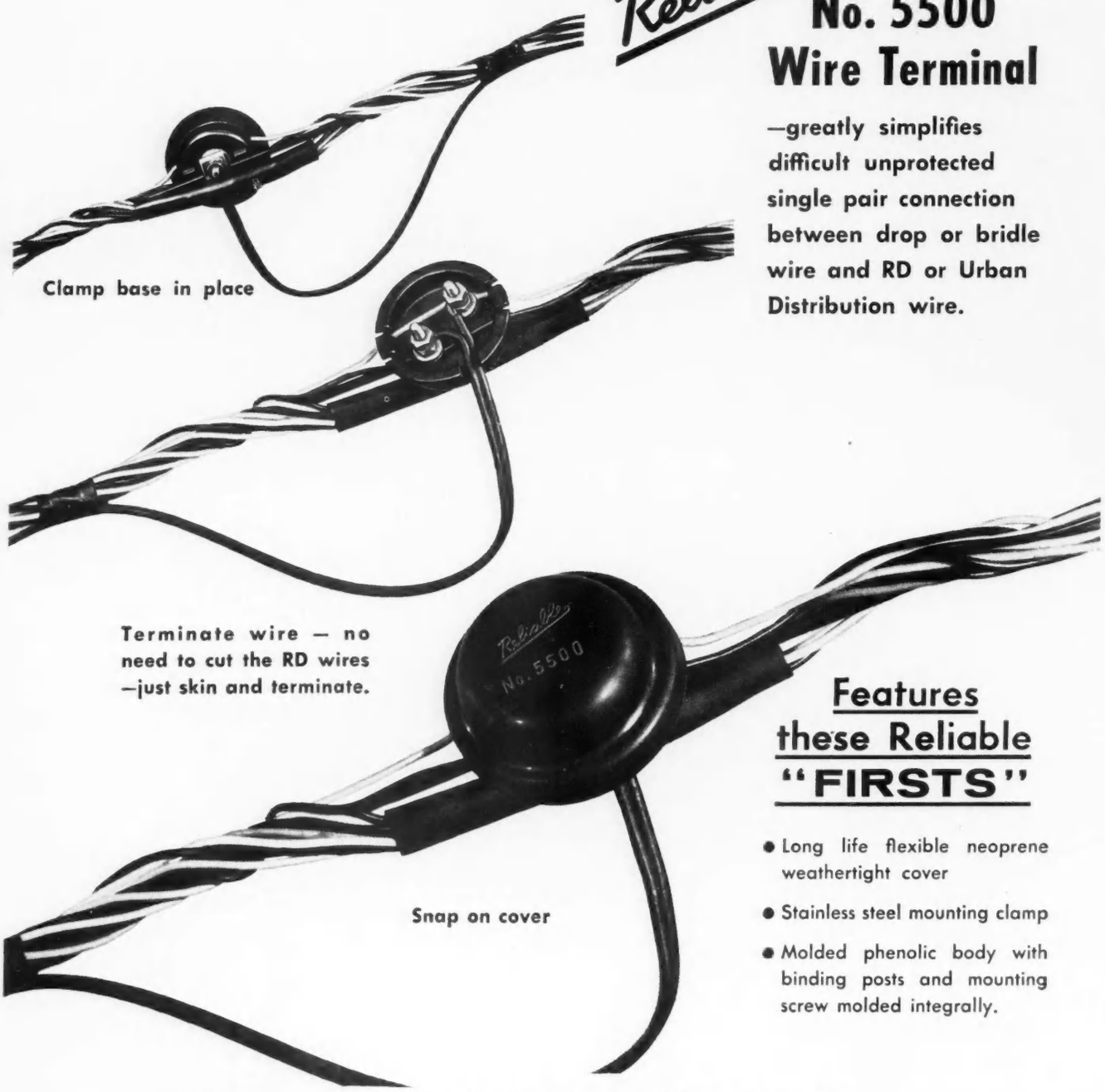

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G. HOWARD BRIGGS (left), general commercial manager, General Telephone Corp., and B. C. AMES, assistant to Theodore S. Gary, vice president in charge of merchandising.

"Merchandising"

Defined, Described and Defended

By T. S. GARY*

Merchandising involves a careful examination of all phases of the marketing process, including—(1) market research, (2) product design, (3) pricing, (4) advertising and promotion, and (5) distribution.

AS YOU KNOW, the term merchandising, at least as it applies to to the telephone industry, is a relatively new concept, but in a few short months it has captured the fancy of the telephone people throughout the country and today it is a very popular term in telephone parlance. As a matter of fact, it is almost impossible to leaf through a trade journal or sit in on a conference of telephone men without seeing or hearing something about merchandising.

In spite of the fact that the word merchandising is now an integral part of our vocabulary, I'm not at all certain that we are in complete rapport when we use it in our speech. The meanings and interpretations attached to merchandising are manifold, and I'm almost certain that I would hear ten distinctly different answers if I asked ten of you for a definition of the term as it applies to our business.

Many management people, fascinated by rather glowing accounts of merchandising, look upon it as a magical cure-all for all their company's sales problems, although they are not quite sure how the cure should be administered. Others, not as easily

Mr. Gary is vice president in charge of merchandising, General Telephone Corp.

impressed, consider merchandising as simply a rather ethereal synonym for sales, and knowing that a good manager should keep pace with industry change, blithely relabel their sales group the merchandising department.

I'm sure that you wouldn't accept either of these interpretations any more than I would. And I'm equally sure that you realize that a merchandising program implemented on either basis could only lead to frustration and a complete waste of time and money.

There are other definitions, less ludicrous perhaps, but still diverse enough to cause confusion. It would be well, therefore, before proceeding further, to define merchandising as we see it in the General Telephone System.

Merchandising, to us, involves a careful examination of all phases of the marketing process including 1. market research, 2. product design, 3. pricing, 4. advertising and promotion, and 5. distribution, for the purpose of suggesting means of modifying or improving any of these elements. So you see, according to our definition, merchandising is a much broader term than simply sales or sales promotion, embracing the whole process of getting our product from its raw state into the hands of our customers who will use it.

Let's take a closer look at each of the functions of merchandising that I have just mentioned to see specifically how it applies to our operation.

Market Research

USING accepted research techniques to probe and explore our market, we hope to ascertain fairly precisely what our customers want in the way of telephone service, what price they will pay for it, what quantity they desire and when they want it.

Probably one of the most grievous errors that the average businessman can make is to assume that because he and his staff react favorably or unfavorably to a particular product or service, the consumer will react in the same fashion, and yet, as far as I know, we in the telephone industry have never operated differently. Fortunately for us, the fantastic post-war demand for almost any kind of telephone service has given most of us more business than we have been able to handle, and we have been able to grow and prosper without considering what the customer really wants.

But now we are on the threshold of a new era, and with the inevitable balance of supply and demand imminent, we must look to extension telephones, other existing supplemental items of equipment and new products and services to enhance our revenues. It is important to note that once the customer has his primary telephone he is a far more discriminating buyer, and unless we offer him the supplemental products and services that he actually wants, rather than those we think he should have, we're not going to do a very effective sales job.

Before leaving market research, I'd like to point out that we do not see it as a "one-shot" process as we know that our market is in a constant state of flux, and the information we develop initially will become outdated very quickly. As a matter of fact, it has been said that the only thing consistent about the market is its consistent inconsistency. American consumers through the very dynamics of capitalism have been taught to expect that the businessman, hoping to gain their favor, will cater immediately to their every whim and fancy. Consequently, what they desire as a convenience today will be considered an absolute necessity tomorrow, and the products and services they acclaim today will be ridiculed tomorrow.

No, a single stab at market research can only lead to confusion, and we know that it will take a number of starts and failures to first find the pulse of our market and then constant surveilance to record its changes.

Product Design

WHEN I CITE product design as one of the functions of merchandising, I don't mean to imply that we will actually do design work. But through surveys and interviews we hope to develop information that will enable the manufacturer to deliver a product that will be more desirable to the consumer. Actually, this information can only be obtained through market research, and for that reason it is probably not deserving of a separate classification; but it occurred to me that I could describe more accurately the work we plan to do in General if I made this distinction.

The author THEODORE S. GARY.

Perhaps I can point out a little more clearly how I feel our merchandising group can be helpful in product design by telling you of the results of a couple of preliminary surveys that I saw a short time ago. I'd like to emphasize the fact that these surveys were preliminary and as such the results cannot be considered conclusive, but nevertheless, they do dramatize the need for consulting the consumer.

Recently, a number of customers were asked, "If you had your choice, what color telephone would you prefer?" Remember, they were not asked which of the existing colors they preferred, but rather which color out of the entire spectrum they preferred. Strangely enough, it wasn't red or

yellow or any of the existing colors for that matter, that proved to be the most popular choice. It was white—not ivory—but pure white. Why? The answer is simple enough. They wanted the telephone located in the kitchen and pure white would match the color of their appliances.

Another survey indicated that the dial light instrument is not, in its present form, really what the customers want. They complain that they cannot find the telephone in the dark, and as the dial light operates only when the receiver is lifted, they must turn on a room light to find the telephone. According to information I have received, the manufacturer is working on a modified version, incorporating a switch-operated night light to overcome this alleged defeciency.

Of course, our hind sight, which for some reason, is always amazingly clear, encourages us to say, "I wonder why no one thought of these things before — it's so obvious." But unfortunately, our foresight has generally been something less than 20/20, and while we do not expect our merchandising group to be clairvoyant, we do hope that they will provide a correction that will enable us to picture our customer's wants and desires more clearly.

While I'm on the subject of product design, I'd like to make a couple of comments that I hope you will think about.

As we get to know and understand our customer a little better, I feel quite certain that we will find he is interested in equipment that many telephone people, long used to saying "No," will immediately oppose as unnecessary gadgets or foreign attachments, contending that they cannot be provided because they would violate some anachronistic rule or principle that has been followed faithfully, and I might add in many cases blindly, for years. I can't emphasize too strongly the need to avoid this negative reaction, as it means certain death to a merchandising program that is dependent, in the final analysis, upon imagination and conceptual thinking for its success. A number of examples can be drawn from the history of American Business that clearly dramatize the fallacy of negative thinking, but perhaps the best known example concerns the controversial Mr. Henry Ford. During the early 1920's Mr. Ford steadfastly refused to heed the advice of his designers, who practically pleaded with him to improve the design of his Model T and equip it with some of the accessories that were becoming standard equipment on competitive cars. The recalcitrant Mr. Ford stated publicly that he was selling transportation, not luxury, and only in black. By adhering to what was obviously a short-sighted policy he subjected his company to a competitive blow from which it has never fully recovered.

I believe our situation today is somewhat analagous to Mr. Ford's situation in the '20's. For years we have offered telephones—and only in black. To change from his philosophy will be exceedingly difficult, but it is imperative if we hope to capture the favor of our customers.

Pricing

THIS IS another function that requires explanation. It is obvious that we will not be in a position to establish firm prices for new products or services. That is a job for the commercial department. However, we must consider price when we attempt to develop the market potential for a new product or service. The demand curve for any product generally varies inversely with price and it will be our job to establish demand curves for proposed products or services at various prices and then check with the manufacturer to see whether or not we can provide them profitably.

Advertising and Promotion

EFFECTIVE advertising and promotion are indispensable concomitants of a well-rounded sales program and while it is the responsibility of our commercial department to arrange for advertising and promotional material as they see fit, it will be our job to measure its effectiveness or impact and try to determine ways to improve it. Most marketing authorities will agree that more money is wasted or lost through ineffectual advertising and promotion than in any other phase of the total business operation. While I certainly do not intend to be critical of our advertising people, because I firmly believe they have done an excellent job, I'm convinced that our merchandising department, by studying and analyzing our customer reaction, can help them to do a better job.

Effective advertising and promotion are indispensable parts of a well rounded sales program.

Let me cite an example. For years it has been the policy of almost every telephone company in the industry to advertise the cost of an extension telephone in such nebulous terms as "a few pennies a day" or "less than the cost of a postage stamp each day." Now this approach may be all right for "Honest John" the used car dealer who has no compunction against using "hocus pocus" to saddle the unsophisticated buyer with a burden he never can carry, but I'm not at all certain that it is the correct approach for us to follow to sell extensions costing less than $1.00 a month.

Please turn to page 64

Employes can be public relations experts

By BILL BROOKS

Every telephone company employe makes an impression, good or bad, at every contact with a person not on the company payroll.

EVERY telephone company employe is a perennial ambassador, for better or worse, every hour of the day, whether on the job or off. Every telephone company employe makes an impression, good or bad, at every contact with any person not on the company payroll.

And it cannot safely be said that, if the good impressions are simply in the majority, therefore a company's public relations program is a good one. The favorable impressions made by telephone company employes must *overwhelmingly* outnumber the unfavorable impressions. We would consider it a horrifying month publicity-wise if 31 news items were favorable to our company and 29 were unfavorable. Actually we are greatly concerned if adverse newspaper mention during a 30-day period occurs at all in a group of 50 to 70 clippings taken from the 26 weeklies and 11 dailies based in our 71 exchange areas.

Before we get into the matter of *how* telephone company employes can be coached into making 100 per cent favorable impressions, let us look at the over-all picture of public relations and refresh our memory on exactly what public relations is.

George E. Brewer, Industrial Relations Director for General Telephone System, reports that public relations could be defined in terms of people as follows:

"Public relations is the way the president of the company speaks to the average customer on chance meeting;—is the way a cashier shoves a receipted bill back to a customer;—is the way you or your secretary answers the telephone;—is the way the repairmen or installer acts on a customer's premises;—is the atmosphere of your offices, the ease with which the public can get to see executives and staff, the way you write your letters, the number of people you have working for the Community Fund, the suppers in your church;—in short, public relations basically adds up to what the people think about you and your employes based upon multitude of personal contacts of many types with you."

Public relations, then, is simply what you and all telephone employes say and do, how you and they act, and what the public thinks of your words and actions.

"Know The Facts"

PUBLIC relations effects, as created by telephone company employes, pop up at the oddest moments. A few days before this was written, one of our female employes was walking down Main Street in Lafayette when a television announcer with a man-on-the-street hookup approached her and invited her to chat awhile about where she works, what she thinks of her job, etc. Our employe did well until the announcer asked, "Didn't your company buy another telephone company recent-

COMPANY CHORUSES are excellent publicity if you have enough singers who will devote an evening or two a month to working up some numbers. Many companies help share the cost of accompanist and director fees as well as pay part of the songbook costs

ly?" Our employe said she thought so and said she thought the company was so-and-so company but she wasn't sure.

Although our employe is normally a relaxed and pleasantly talkative person, she "froze" a little at this point in the interview and she admitted later that it was not because she was nervous but simply that she was not sure of her facts and did not want to say something to hundreds of thousands of televiewers which might be wrong or misleading.

This reflected more than anything else the fact that some of our employes need much more "coaching" on the background and progress of our own company. If properly instructed on recent acquisitions by our company, this employe could have given the exact name of the recently purchased company and, if time and the announcer had permitted, perhaps some very interesting facts about the company and the telephony in general. We were very pleased when, at the announcer's question about where she worked, she replied, "General Telephone Company" instead of merely "The telephone company." Employes feel a closer kinship to their company if they get into the habit of using the name of the company. Every telephone company has a different name for more than mere corporate reasons. Employes should be asked to use that name.

We emphasize the use of our name and ask our employes to do so for several reasons. First, we have had the name "General" for only four years and we want it to become as familiar to subscribers in areas which we serve as such trademark names as "Kleenex" and "Coke." Also, employe morale is helped, we feel, if their friends and neighbors know immediately what "General Telephone" means. Having the company's name become better known makes our sales program goals more easily attainable. It is a truism that people buy what they know and have heard of. Advertisement by word of mouth is as effective, in certain respects, as ads in newspapers, radio, and television.

For these reasons we have asked our business office personnel to say "General Telephone" instead of merely "Telephone company" when answering outside calls and to say "General" with pride in their normal conversation.

Employe Assistance

GETTING the employe mindful of of the impact and need for good public relations techniques is a long step toward solving recruiting problems. The employe who, whether seriously or jokingly, constantly knocks his own company in the presence of outsiders is doing incalculable damage to the hiring program of his employer. What person, looking for an interesting, well-paying job, would be favorable impressed with telephone companies after hearing such remarks as:

"Boy, is MY boss a slave-driver!"

"You can't even go to rest room in my department without special permission."

"Getting called out at all hours of the day and night—what kind of job do you call that? I oughta quit!"

"Haven't had a raise in two years and nobody even tells me why not!"

There is a logical, informative answer to all the above questions and statements. It is up to the supervisor to become aware of the complaints and know what to do about them so that each employe can work in a pleasant frame of mind that will carry over into his relations with the public. It is, of course, up to management to equip the supervisors with the tools with which this job must be done.

How to do it?

One of our companies meets this problem by means of a program for employe communication which emphasizes self-interest. Each supervisor, over a three-month period, is scheduled for a 30-minute talk with each employe under his supervision to talk about the company, its programs, its direction, its progress, all adding up to security of employment and opportunity for personal advancement. The program has been well-received by all concerned and has not been at all too time-consuming. Actually, when the interview schedule was finally set up,

it amounted only to a maximum of seven such interviews per supervisor over the three-month period.

"Boosting Employe Techniques"

GETTING employes to use their own resourcefulness in meeting problems and giving them credit for their initiative is an excellent way to boost their public relations techniques.

One of our favorite example of this occurred a year ago Christmastime. The wife of a businessman in this town wrote the following letter to an editor in a nearby, larger town:

"Dear Editor:— Last Friday we had an experience of a lifetime and one which is the dream of every little child. When I came home from the office in the morning our five-year old girl had dialed "8" and was talking to Mrs. Santa Claus. It's needless to say she walked on air the rest of the day.

"About 6 p. m. on Christmas Eve the long distance operator asked for Lynne. Before the five-minute call had ended, Lynne had talked to Santa Claus and one of his little girl elves.

Whoever this kind operator is who helped Lynne realize a childhood dream will never know what she did to a little girl's heart or what a wonderful memory she had planted in the minds of our entire family. Many, many thanks to her."

Some of our operators and service assistants had, of course, enacted the roles of Santa, Mrs. Claus and the Christmas elf. The incident didn't bring in any more revenue, but it definitely showed that a utility, too, can have as much Yule spirit as anybody. And it represents one of the finest examples of affirmative public relations we have encountered.

Three Main Essentials

OUR PUBLIC relations program can be said to be based on enthusiasm, contact, and information. The employes must be enthusiastic (or guided to an enthusiastic frame of mind), they must have contact with company supervisors and department heads and they must have the information they need to persuade a lethargic and doubtful public into believing that telephone rates are not exhorbitant, that telephone companies are working constantly to give them the best possible service at the lowest possible cost, and that the telephone companies have the interests and welfare of the communities at heart at all times.

During rate cases, for example, supervisors should be sent information on the status of the hearings—what has gone on before, what is happening now, and what is scheduled in the future. If possible, these supervisors should be briefed before the petition for higher rates is even presented to the public service commission. Newspapers will publish the news that a petition has been entered for higher rates and the supervisors' friends and neighbors will inevitably have questions. It is up to the company to supply some sort of answers. Where else can the supervisor get the information? Should he or she be allowed to guess? Is that good business, good public relations? The public expects ALL telephone company employes to have ALL the answers.

Our commercial department sent out a mimeographed directive during our recent rate case so that all commercial personnel would have information on the rate case to pass on to subscribers if they asked.

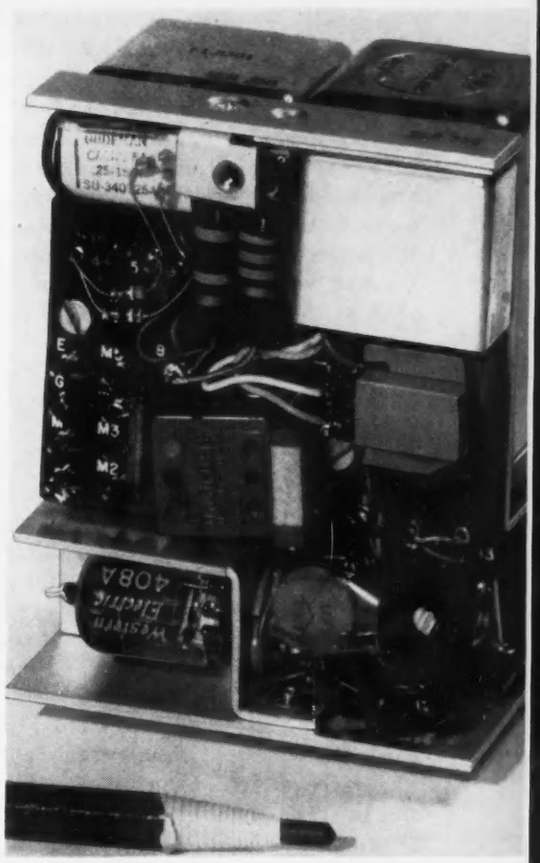
Keeping employes informed of company activities is a topnotch way of making them feel a vital part of the company and boosting their skills in public relations. In addition to special directives such as the rate case bulletin, we mail *Management Bulletins* to each of our 150 supervisors. These bulletins inform the supervisors of dial conversions in other divisions in our state, of promotions in other divisions, and any other matters which the department heads feel would help the supervisors to do a better job.

The supervisors have been asked to pass this information on to all their employes and to answer any questions their people may have on matters in the bulletins. If the supervisor doesn't know the answer, he is expected to get it.

IF TELEPHONE EQUIPMENT is to be photographed for purposes of publication, get an employe in the photo. It helps show the size of the equipment (important for the general public) and adds sparkle that equipment cannot give.

Editor's Note:—Part II of Mr. Brooks article—"Employes Can Be Public Relations Experts"—will appear in the August 1 issue of "Fortnightly Telephone Engineer."

CARRIER SIGNALING OVER TELEPHONE CHANNELS



The carrier signaling subassembly of Type 45A equipment, is an integral part of a channel terminal and provides either ringdown or dial signaling facilities for that channel.

CARRIER SIGNALING enables a carrier system to receive dial or ringdown signals from a switchboard, transmit them to a distant terminal, and deliver them to the receiving switchboard in their original form. This article describes various methods of carrier signaling.

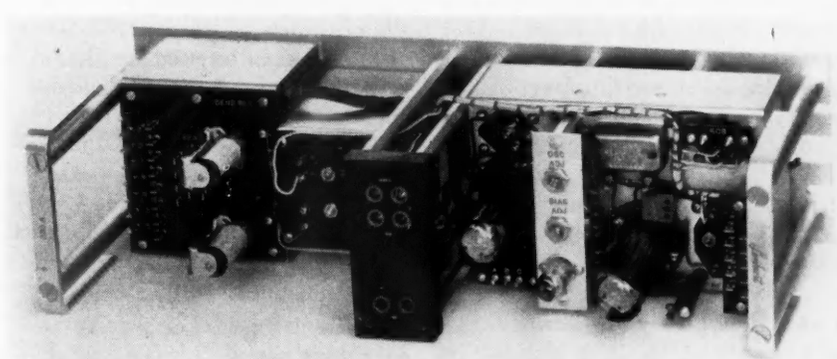
By B. L. ARNOLD

THE MOST obvious and readily acknowledged function of a telephone system is the provision of facilities for the transmission of voice communication. However, a second and almost equally important function is the transmission of signals to successfully initiate and complete a call. Signaling, with its attendant switching equipment, accounts for a very large percentage of inside telephone plant.

The various methods of signaling now commonly used were first developed for local plant voice-frequency facilities, and for voice-frequency toll circuits. Of these, the two most common types used for toll circuits are ringdown and dial signaling.

Electrically, ringdown signaling is the transmission of a current of uncritical duration to cause audible or visual indication at the distant end of a line. Dial signaling consists of interrupting a direct current at a rate of approximately ten times per second in a specific pattern. Each individual pulse is of a critical and predetermined length, and is used to operate automatic switching equipment. Both of these signaling methods generally use direct current of very low-frequency alternating currents.

A carrier channel cannot directly transmit either ringdown or dial signaling because the direct current or low-frequency components involved are below the cut-off frequency of the channel bandpass filters. It is necessary to convert them into some other form which can be transmitted in the carrier-frequency range.



The carrier signaling panel for one channel of Type 33 equipment. This panel can provide either ringdown or dial signaling facilities.

Methods of Carrier Signaling

CARRIER signaling is usually accomplished by using the incoming signal to operate a switching device in the channel terminal. This device either closes a circuit which applies a tone to the channel or shifts the frequency of an existing tone. At the receiving terminal the tones are

translated, by means of a relay or other device, into ringdown or dial signals which are essentially identical to those applied to the transmitting terminal. Turning a tone on and off or changing its amplitude is called amplitude-shift or amplitude-modulated (AM) signaling while shifting the frequency of a tone or switching between two tones is called frequency-shift or frequency-modulated (FS or FM) signaling.

In amplitude-shift signaling, a change in the level of a tone is used to change the signaling indication at the receiver. The level change may be between a low-level and a high-level tone or between tone-off and tone-on. In either case, a sharp bandpass filter at the receiving terminal separates the signaling tone from the speech frequencies. The tone, when it is present, can then be rectified and the resulting direct current used to operate a relay. The relay is connected in such a manner that its operation produces the desired form of signaling for the receiving switchboard.

Amplitude-shift signaling has the limitation that it cannot be used for supervision or regulation. When these are desired, a constant tone other than that used for signaling must be provided. Also, since the signaling circuits operate on a change of amplitude, a carrier system which has poor amplitude regulation or is noisy may create false operation of the signaling circuits.

Frequency-shift signaling, as commonly employed, uses two tones, one of which is always present on the channel. The signaling indication at the receiving terminal is obtained by causing a shift from one tone to the other. The tones involved in this type of signaling are selected by a bandpass filter capable of passing both tones. A discriminator, which can produce a positive or negative voltage in response to a frequency change, detects the frequency shift between the two tones. The resulting current is used to operate a polar relay which, in turn, produces either dial signaling for automatic switching equipment or, by the addition of an applique panel, produces ringdown signals for a manual switchboard.

Frequency-shift carrier signaling has the advantages that a tone which can be used for supervision or regulation is always present, and that it is not sensitive to amplitude variations in the carrier system. Its only disadvantage is that large carrier-frequency differences between the transmitting and receiving terminals can cause improper operation. In modern carrier systems with crystal-controlled oscillators, however, this is seldom a problem.

B. L. ARNOLD, mgr., distributor sales dept., Lenkurt Electric Co., San Carlos, Calif. Mr. Arnold's article begins a new series on carrier equipment. In future issues various authors will discuss: — (1) Filters, and (2) The Control of Noise in Communication Circuits.

In addition to the different methods of applying the signaling information to the tones, there are several ways in which the tones themselves can be transmitted over a carrier system: they can be transmitted in the voice channel before communication is applied to it, in a narrow band within the voice range, in a voice channel reserved specifically for carrier signaling, directly in the carrier-frequency range, or in the narrow band just outside of the telephone voice range but within the allocated channel bandwidth.

With most of these carrier signaling methods, either ringdown or dial signaling can be transmitted. The method used for a particular application depends upon several factors, such as cost, the frequency spectrum available, and the quality of voice channels required.

Voice Frequency Signaling

ONE OF THE first methods of obtaining ringdown signaling over a carrier system was called 1000/20 cycle signaling. In this type of signaling, a 1000-cps tone is transmitted directly in the voice-frequency channel to signal the distant end. To prevent the 1000-cps components of speech from falsely activating the signaling circuits during a conversation, the tone is modulated by a 20-cps wave. Because the modulated 1000-cps tone is well within the voice range, it can be transmitted between carrier terminals in exactly the same manner as voice communication.

A block diagram of a carrier terminal equipped for 1000/20 cycle signaling is shown in *Fig.* 1. The incoming ringdown signal operates a relay in the transmitting carrier terminal which then applies the modulated tone to the voice channel. Since no communication is present on the channel during signaling, no interference with speech is experienced. At the receiving terminal, the tone is selected by a narrow bandpass filter, rectified, and the resulting direct current is used to operate another relay. This relay controls the d-c or a-c ringdown signal which is then supplied to the receiving switchboard.

Although 1000/20 cycle signaling does not require a permanent portion of the frequency spectrum, it has several major drawbacks which limit its usefulness. It cannot be used to transmit dial signaling, and there is no way by which supervisory or regulatory signals can be transmitted over the voice channel when speech is present.

Another form of signaling within the voice range, midband speech-plus-signaling, can be used for applications where a tone is desired continuously on the channel. In this type of signaling, a band elimination filter permanently removes a narrow band of frequencies from the midband or high-frequency portion of the telephone voice channel. This narrow band can then be used for the transmission of ringdown or dial signaling, and for supervision or regulation. However, the removal of this band from the speech range degrades the channel so that this method of signaling can only be used for applications where the quality of the voice channel is not too important.

There is one other way in which signaling can be transmitted in the voice-frequency range of a carrier voice channel — dividing one voice

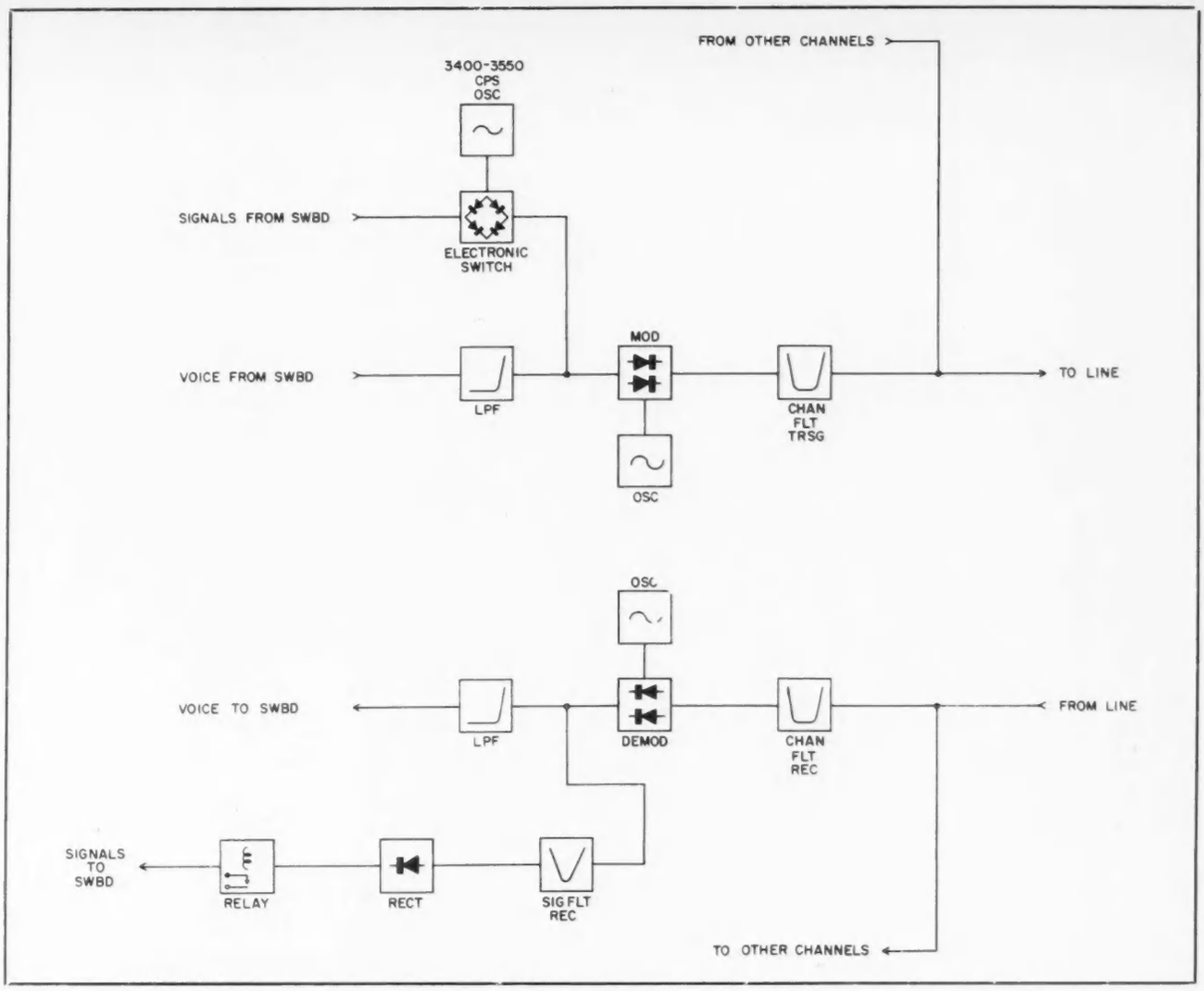


FIGURE ONE:—Block diagram of a carrier terminal equipped for 1000/20 cycle signaling.

channel into a large number of smaller signaling channels. Therefore, at the expenditure of one voice channel, up to about 24 signaling channels can be obtained to supply signaling facilities for an entire carrier system.

Either ringdown or dial signaling can be transmitted over these signaling channels and since the presence of a tone has no effect on the voice channels, supervision or regulation tones can be transmitted on the system at all times. However, one voice channel must be sacrificed to provide these signaling facilities.

Carrier-Frequency Signaling

INSTEAD of transmitting tones in the voice channels, signaling can also be accomplished by keying carrier-frequency tones which are then applied directly to the transmission line. This is shown in *Fig.* 2. The tones may be specially generated for this purpose, or may be the voice channel carrier-frequencies which are normally suppressed. In either case, the signaling tones are inserted directly in the carrier-frequency range without previous modulation. Since the signaling and the voice channels are completely separated frequency-wise, any type of signals or tones can be transmitted without interference.

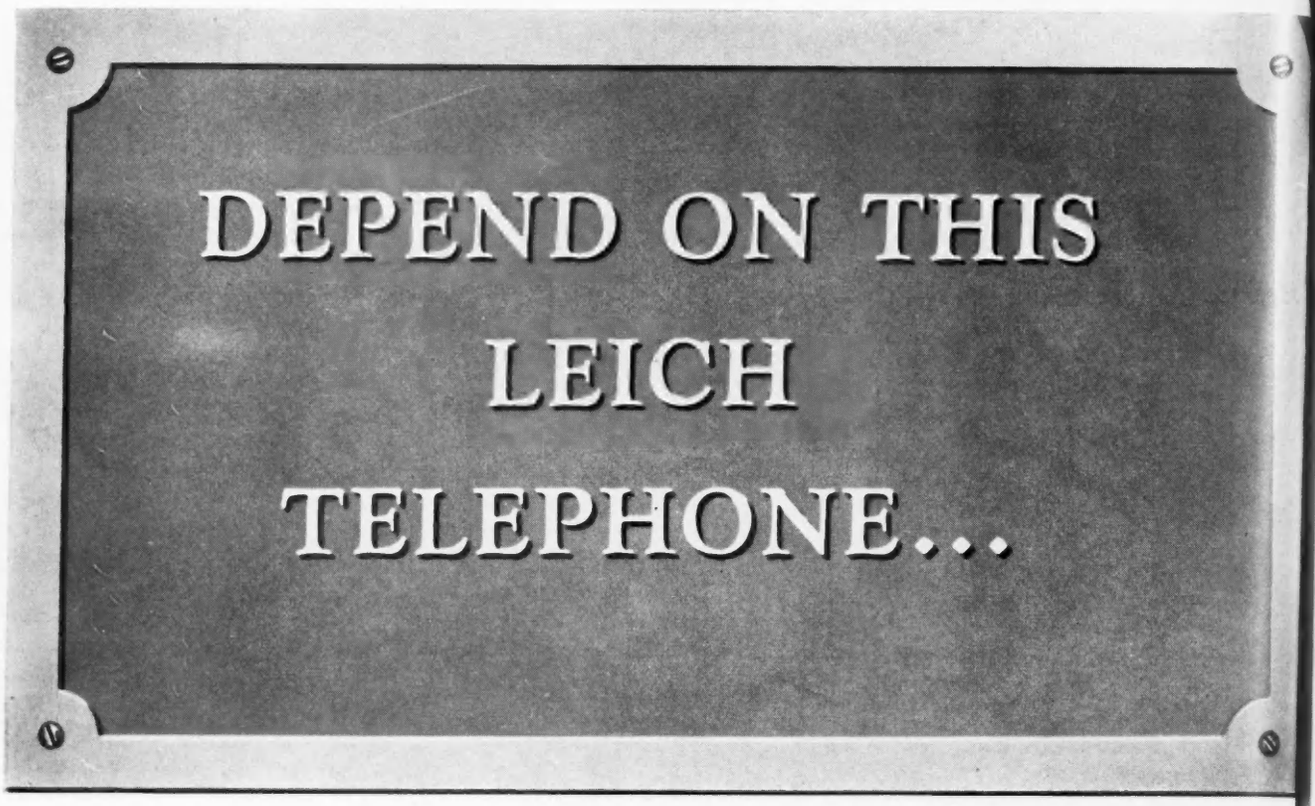
When the voice channel carriers are used for transmitting the signaling, very sharp separation filters must be used to prevent interference between the signaling and the speech frequencies. This requires filters which are capable of separating frequencies, in the carrier-frequency range, that are within about 300 cps of each other. Less precise filters are permissible if specially-generated carrier-frequency tones are utilized for the signaling. However, this means special oscillators must be provided and a wider carrier-frequency spectrum is necessary to leave sufficient room between the signaling and the speech channels.

Out-of-Band Signaling

A WIDELY used type of signaling in modern carrier systems is called out-of-band signaling. Out-of-band signaling utilizes a narrow portion of the voice channel just above the telephone voice-frequency range. This band extends from the upper limit of the voice range (about 3100 cps) to the upper limit of the carrier voice channel (about 3600 cps). This range from 3100 to 3600 cps is not used for speech and can therefore be used to transmit either ringdown or dial signaling.

Out-of-band signaling has the advantages that the signaling channel is an integral part of the voice channel, that tones for supervision or regulation can be transmitted without interference to the speech frequencies, that the voice channel is not degraded, and that the available frequency spectrum is conserved. Out-of-band frequency-shift signaling is the most fre-

Please turn to page 44



Depend on the Leich telephone for the finest transmission and reception you've ever offered your subscribers.

FOR IMPROVED TRANSMISSION

Never before will your subscribers hear so clearly and well. It doesn't matter whether you use this telephone on long lines or short . . . the equalizing network retains constant high quality transmission under varying line conditions. Another feature of this telephone is the interference filter circuit that cuts down dial noises on radios.

Depend on the Leich 100 for reliable ringing.

RELIABLE RINGING

The dependable Leich ringer is available for straight line, harmonic, synchromonic and decimonic ringing. There are two kinds of single coil ringers used, straight line and frequency type. They differ only in the type of armature assembly and ringing condenser used.

Depend on the Leich telephone for years of trouble-free service!

LESS MAINTENANCE THAN EVER BEFORE

All parts have been factory tested to insure longer life. It was designed so adjustments are easy and inexpensive to make. Never worry about replacing cases on this instrument. The tough Tenite case is made to withstand lots of daily abuse.

Depend on the Leich 100; a telephone with longer life than you ever dreamed possible. Write for a catalog today.

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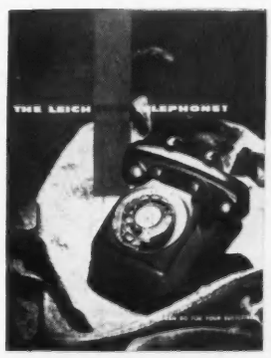
What'll it be? Wall or desk installation. Here's another feature of the Leich 100 telephone.

With this instrument, you can serve your subscribers with either wall or desk model. You don't have to buy or add a thing. If the individual desires a wall telephone, turn the Leich telephone around and mount it on the wall.

It's just that simple, and darn practical too.



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GENERAL TELEPHONE SYSTEM

Carrier Signaling

(Continued from page 41)

quently used type of signaling in modern carrier systems.

Typical Example

THE SIGNALING tones used in typical carrier equipment using out-of-band frequency-shift signaling are 3400 cps and 3550 cps. A shift from one tone to the other is used to indicate ringdown signaling, while a rapid shift between them corresponding to the applied dial pulses is used to indicate dial signaling.

A block diagram of a carrier channel equipped for out-of-band signaling is shown in *Fig.* 3. The incoming signaling is applied to the signaling circuit of the transmitting carrier channel. The signaling circuit consists of an oscillator which produces a 3400 cps wave. The frequency-determining network of this oscillator consists of a tuned circuit and a capacitor which, when connected to the tuned circuit, will change the oscillator frequency to 3550 cps.

The presence of a dial pulse or a ringdown indication connects this capacitor to the tuned circuit. The connection is made by an electronic switch which is composed of four crystal diodes. The action of this switch is much the same as a relay except that it is faster and can follow the dial pulses more accurately.

The tone produced by the oscillator, which is shifted by the incoming signaling, is inserted into the voice channel. At this point, the voice range has already been limited by a lowpass filter to an upper frequency of about 3100 cps. The combined signaling tone and the voice communication are then simultaneously modulated to their carrier-frequency location.

At the receiving terminal, filters separate the speech and the signaling frequencies. The signaling tone is applied to an FM discriminator composed of a pair of series-resonant LC circuits, each resonant to one of the signaling frequencies. The presence of one or the other of the signaling frequencies is detected by this dis-

EDITOR'S NOTE: In answer to the requests of many readers we have reprinted L. A. Hodson's articles on "The Independent Company and Nationwide Toll Dialing." A booklet containing the entire series (six sections) is now available. Cost of the booklet is 75¢ per copy. Send orders direct to Reader's Service Dept., Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Illinois.

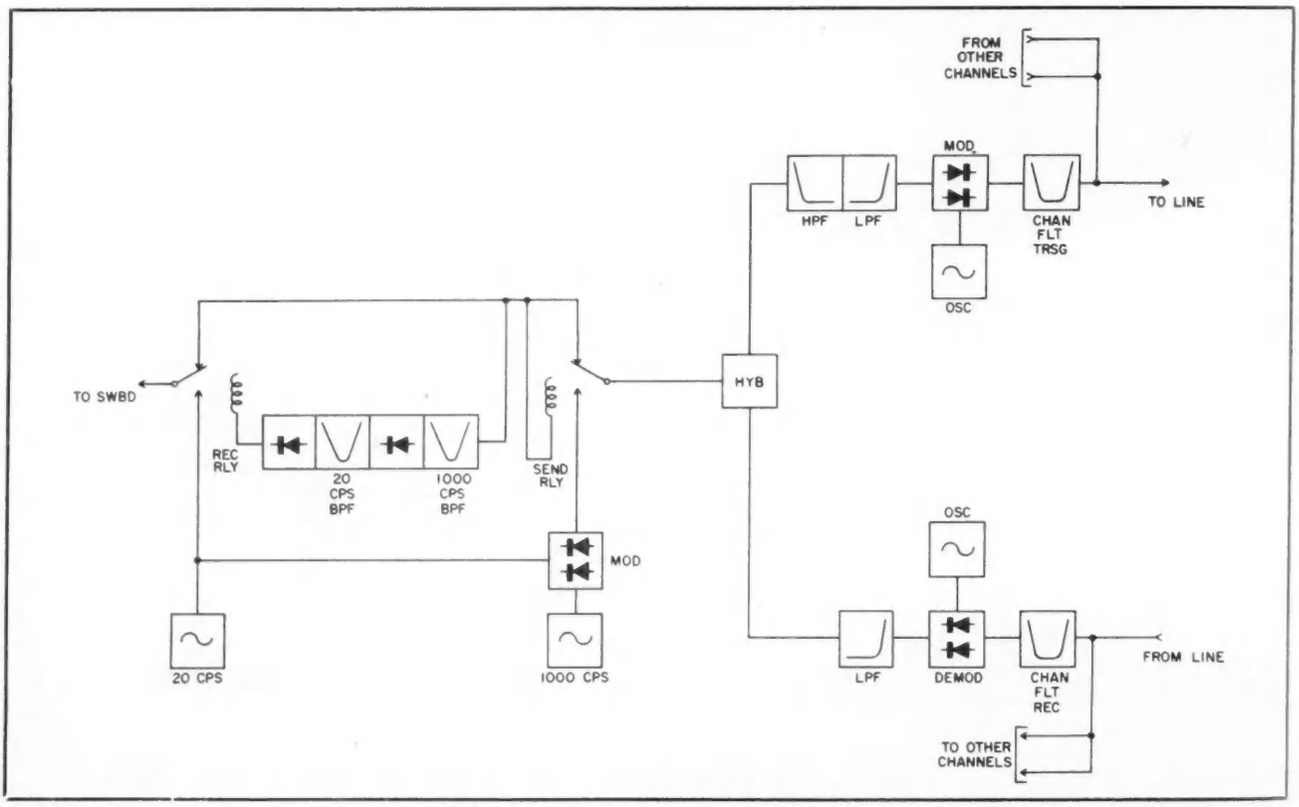

FIGURE TWO:—Block diagram of a carrier terminal equipped for carrier-frequency signaling. The carrier-frequencies which are generated specially for signal transmission use parts of the frequency spectrum not used for the voice channels.

GUY-GRIPS eliminate clamps and reduce strand required . . . do not slip! Tests prove that even extra high-strength steel strand breaks outside the Guy-Grip when subjected to impact, repeated load or gradual tension. Save 50% installation time.

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TANGENT SUPPORTS AND DEAD-ENDS

Made of stainless steel for corrosion resistance, these Preformed Tangent Supports and Dead-Ends are coated with Neoprene to cushion their grip and uniformly distribute holding pressure. Designed for 2 - #14 or 2 - #12 "C" Rural conductors, they assure a low radial pressure over the entire holding area and prevent slipping, thus eliminating a major cause of resagging. Note multiple-wire bail of Dead-End.

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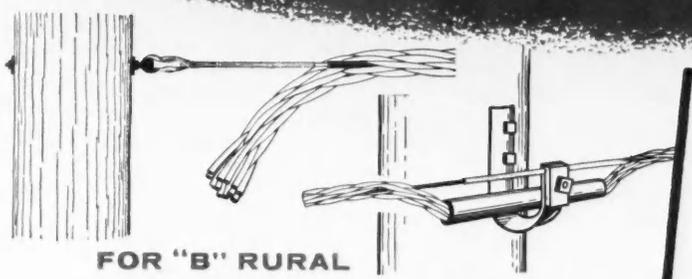
Used and praised by a growing list of leading Telephone Companies, Preformed Products are the result of *progressive* ideas backed by *extensive research* and *sound engineering* insuring the ultimate in *field performance. Ask your Telephone Supplier for complete details of their exclusive advantages.*



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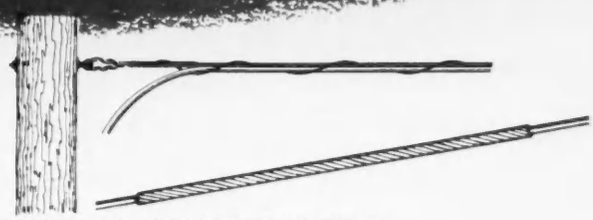
PREFORMED DEAD-ENDS are the easiest-to-install, non-slip answer to dead-ending. Can be installed without cutting messenger.

PREFORMED ARMOR RODS protect insulated messengers against clamping pressure or abrasion damage.



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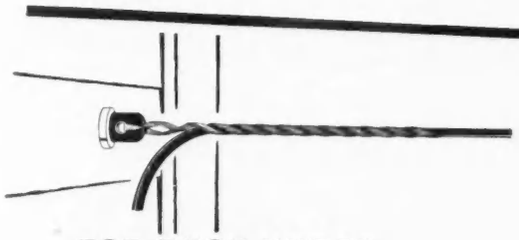

FOR DROP-WIRES

DROP-WIRE DEAD-ENDS of stainless steel . . . Neoprene coated . . . cushion the grip; eliminate abrading or cutting through insulation; provide low radial pressure over the entire holding area . . . no damaging concentrated pressures. No slippage or cold flow. Multiple-wire bail prevents fatigue failure.

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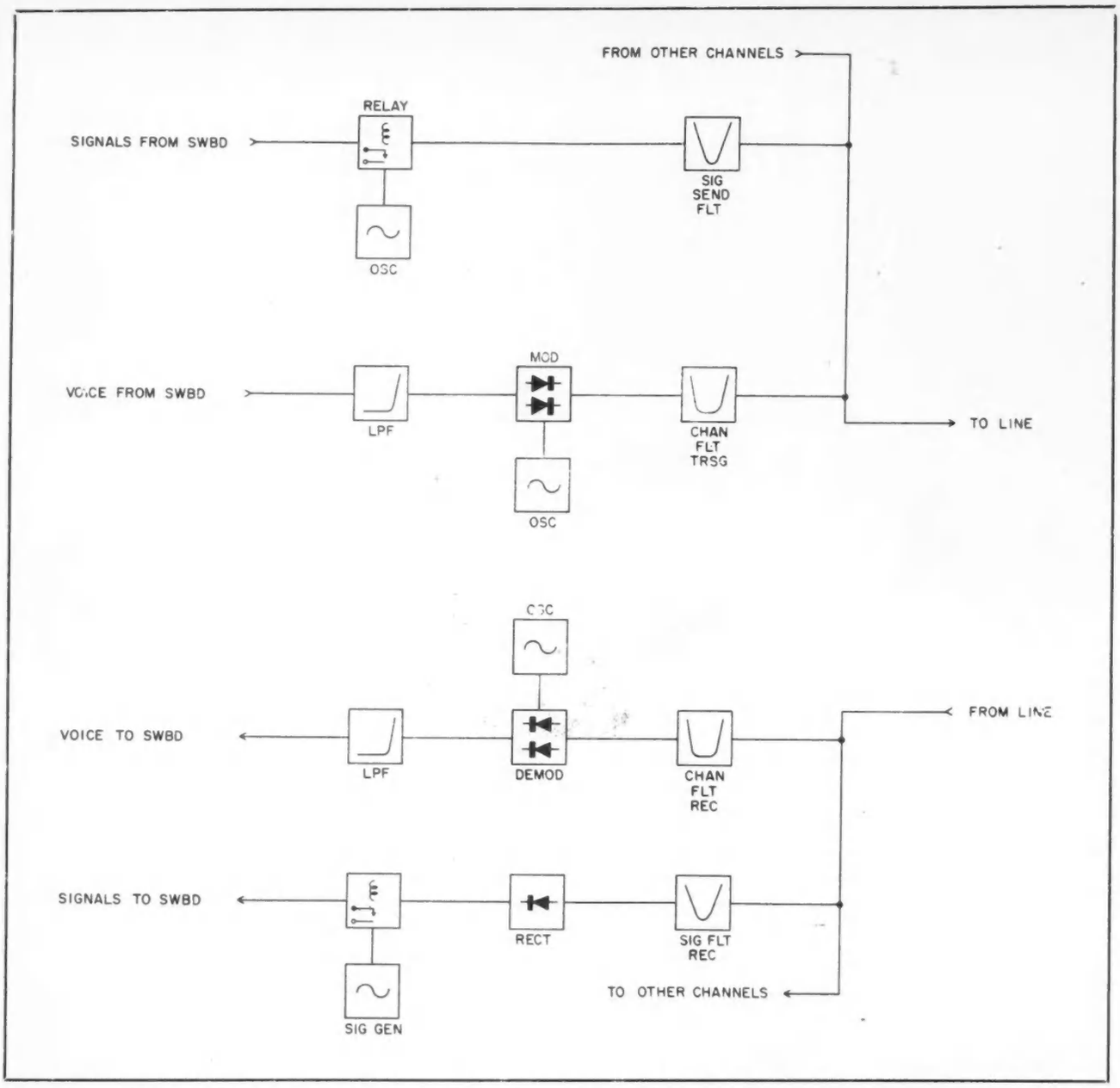


FIGURE THREE:—Block diagram of a carrier terminal equipped for out-of-band signaling. The signaling tones are in the voice channel but above the speech frequencies.

criminator and is translated into a positive or a negative voltage by a rectification stage.

These voltages operate a polar relay whose contacts are connected to the receiving switchboard signaling circuit. When one frequency is present, the relay has one set of contacts closed; when the other frequency is present, another set of contacts is closed. By shifting frequencies in this manner, either ringdown or dial signaling can be transmitted over the carrier channel.

This signaling tone is also used for channel regulation since it is always present. A portion of the received signaling power is used to operate the regulator circuit. As the level of the signaling tone decreases, an automatic change is made in the attenuation through the receiving channel terminal which tends to maintain the speech level constant.

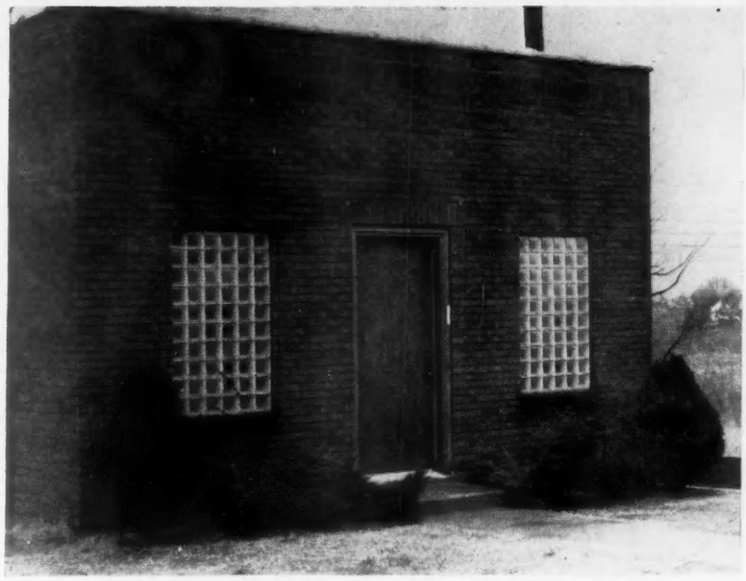
Conclusion

SINCE THE d-c or low frequency signaling methods used with voice-frequency facilities cannot be directly transmitted over carrier channels, they are converted to a form which can be transmitted in a voice channel or in the carrier-frequency range. There are various ways in which carrier signaling can be accomplished, each depending upon the location of the carrier signaling tones and the way the signaling information is impressed on the tone.

The method of carrier signaling used for a particular system depends upon the factors of cost, application, amount of frequency spectrum available, and the voice channel quality required. In general, each type of carrier signaling has a specific application for which it is the most desirable.—*B. L. Arnold*

"QUOTE"

Duty then is the sublimest word in our language. Do your duty in all things. You cannot do more. You should never wish to do less.—Robert E. Lee.



Community Dial Offices

By RUTH E. RICHARDS

If you are planning or participating in some way with a dial conversion, our Traffic Editor's outline of some of the non-technical responsibilities associated with the conversion is packed with helpful ideas.

ON THE bookshelves of my childhood home there was a volume titled "Farm Ballads." Written by a midwest poet of the latter nineteenth century, it contained many narrative poems of simple folk and their trials and triumphs. An avid reader all my life — I recall vividly the poignant details of many of these verses, one of which told the story of a couple who had saved and planned for many years for a new home—, "We're moving out of the old house, 'n moving up into the new," — and the verses go on with the recollections of the homemaker of all the joys and sorrows that had been experienced in the old home through the years, and these memories were dulling a little the anticipation of the new life ahead.

If you are planning or participating in some way with a dial conversion, you may feel a kinship to the woman who dreaded in some ways the changing of scenes, the bidding farewell to old responsibilities as you shoulder new ones.

This outline will deal specifically with some of the non-technical responsibilities associated with the conversion of a manual exchange to a CDO, or Community Dial Office. The financing, engineering and building phases of such a conversion are assumed to have been accomplished.

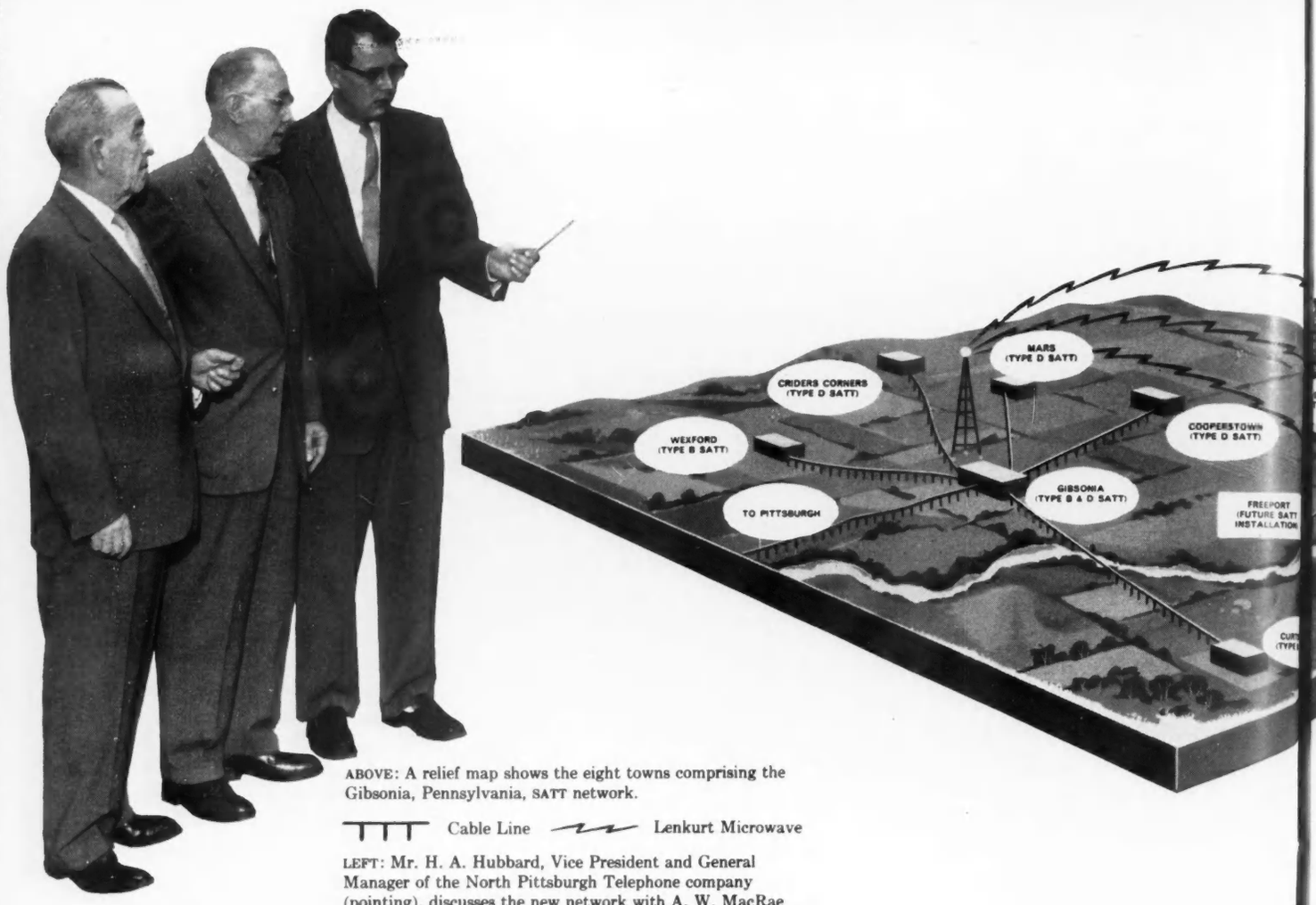
From a traffic viewpoint — the personnel phase will be one of the first problems to be resolved. What provision is to be made for the operating force whose present jobs become non-existant at the conversion. It is natural that each individual will be concerned about her welfare, and she is entitled to an honest answer. There are many factors involved in the answer, depending upon the size of the company's operation, ie, whether in more than one community, the company's financial status, the labor market in the area served, and many more.

Line Assignment (Number Assignment)

IN A DIAL exchange, subscriber's lines or stations terminate on banks of connectors which are usually divided into groups of 100 or 200 terminals. The assignment of a connector bank terminal to a line or station is termed "number assignment." The result is the subscriber's telephone number. In all except the smallest dial units, the manner of distributing lines by classes of service among the connector groups, to provide a balanced load on the equipment, is an important part of preconversion work. In general this work is considered a traffic function and must be done with care to insure both good service to the customer and efficient use of the equipment.

Subscriber's lines are separated into two general groups, business and residence, and each group offers and receives different types of calls. In general, business lines carry the bulk of their traffic during the normal business day, 8 A. M. to 5 or 6 P. M., while residence lines are used over the entire day. Business lines make and receive more calls per station with shorter conversation time, while residence lines offer fewer calls but with longer holding time. It is reasonable to assume then that a connector board that has both business and residence lines assigned to it will carry a more average traffic load than would one which had only one type of line assigned to it.

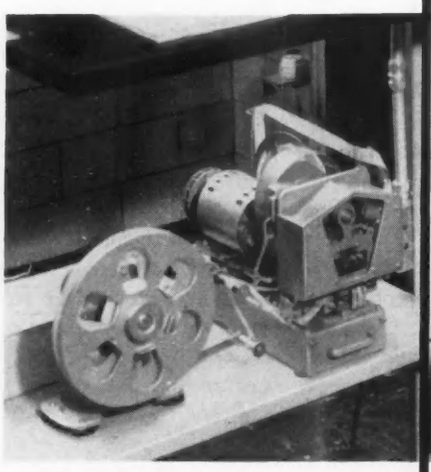
For a small exchange a very satisfactory balance of traffic load can generally be obtained by distributing equally, among all connector boards, the total number of lines by classes of service, such as Business 1-party, Residence 1-party, Business 2-party,



ABOVE: A relief map shows the eight towns comprising the Gibsonia, Pennsylvania, SATT network.

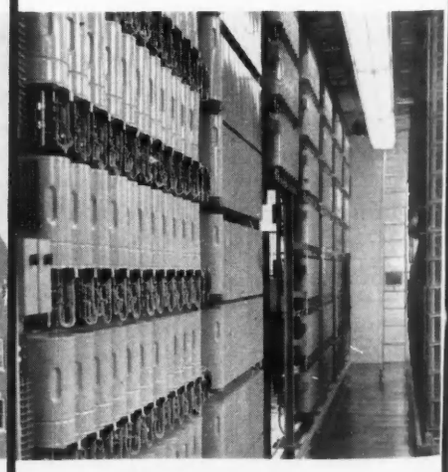
Cable Line Lenkurt Microwave

LEFT: Mr. H. A. Hubbard, Vice President and General Manager of the North Pittsburgh Telephone company (pointing), discusses the new network with A. W. MacRae (left) and C. R. Obergfell of Automatic Electric.



First Step Toward Economical Billing
One of a battery of perforators which turn out a permanent paper tape containing all data needed to bill each toll call. The tape is then used to do all billing by machine—easily, speedily, and economically.

Trouble-Free Links
between Gibsonia and Saxonburg and Freeport are provided by Lenkurt Microwave. Note the antenna on top of this fine central office building at Gibsonia, Pennsylvania.



A Model of Gleaming Dependability
is this Strowger Automatic linefinder bay at Gibsonia. Conversion to Strowger is one of the major parts of a system-wide modernization program being carried out by the North Pittsburgh Telephone Co.

8 *eight Pittsburgh suburbs start direct distance dialing with* **SATT!**

GIBSONIA, PA. subscribers and those of seven other Pittsburgh suburbs now enjoy direct dialing to distant parts of the United States. SATT (Strowger Automatic Toll Ticketing) equipment, recently installed by the North Pittsburgh Telephone Company, tickets the calls with speed and dependability.

Gibsonia is the toll center and ticketing center for the network of suburbs. Over 200 trunks connect Gibsonia to the nationwide tandem and toll dialing facilities at Pittsburgh, 20 miles distant. "Via net loss" trunks are used throughout (for the first time in an independent network) to insure a uniform transmission level throughout the system.

SATT meets every challenge at Gibsonia—alternate routing, dual code translation, rate computation—and its four-channel tape speeds up machine accounting. SATT will meet *your* toll ticketing problems with the same outstanding success. Write us about them today. Our engineers will be glad to help you. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or Call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

Residence 2-party, and likewise 4-party and multi-party lines.

In an office with two or more connector boards, it is desirable to distribute known high calling rate lines among all the boards to distribute the load. In smaller manual offices these lines can often be determined from the Chief Operator's knowledge and experience of user's calling habits. A tally of Incoming and Outgoing calls from various lines during several busy hour periods prior to dial number assignment will also yield helpful information. In an office equipped to serve 500 lines, distribution might be made thus: For example, with 5 100 line connector boards, and with 454 lines to be assigned originally, the distribution might be as follows:

Connector Board	Individual	Two-Party	Four-Party	Rural	Paystation	Aux	Total
200 (1-0)	55	24	2	5		4	90
300 (1-0)	55	25	3	8			91
400 (1-0)	55	25	3	8			91
500 (1-0)	55	25	3	8			91
700 (1-0)	46	24	3	10	8		91
Total	266	123	14	39	8	4	454=100%

The total of each class of service represents 100% of the numbers to be assigned in the class. Numbers in parenthesis ( ) are ring (final) digits. Paystations are all assigned in one board to follow a specific number pattern.

The type of equipment and its operational features will govern, to a great extent, the assignment of lines to provide emergency services such as Fire and Police. Wherever possible, number combinations easily memorized are preferred, and those which require short pulls of the dial, such as 2341 and 2351. Combinations of the digits 1 and 2 are generally avoided because line trouble may accidentally set up such numbers as 2111 or 2121 or 2112.

In addition to the care taken to insure an even balance of traffic through the original pre-cutover assignments, it is important that future additions to lines in service be as carefully distributed in order to maintain balance and a satisfactory grade of service. Where this responsibility rests will depend upon the individual company's organization and scope of operation. In many companies it is a traffic function.

Following the cutover and after traffic has become stable, (after the newness, the novelty of dial service has worn off) and at regular intervals thereafter, peg count meter readings of Originating traffic and Overflow and/or All Trunks Busy registers will provide data to check upon the adequacy of the equipment and the balance of traffic in the boards.

When CDO equipment replaces a manual switchboard some provision must be made for supplying the necessary customer services such as Information, Assistance, Intercept service where such equipment is installed, etc. These services may be performed at another local or toll office, often at the toll center, and the office supplying these customer contact services is known as the "Operator Office."

The operators who perform these services must have accurate and readily available information concerning the telephones served by the Community Dial Office. If the Operator Office is operated by a different company, payment for the service is generally covered by a contractual agreement, and arrangements are made for keeping Information records current as telephones are installed or removed.

Information covering essential services in the CDO should be kept at the switchboard in the Operator Office. Such lists will include fire and police or sheriff's office numbers, hospital and/or doctors' listings. In addition, Alarm Checking Numbers and the meaning of various tones should be readily available, as well as the name and number of the persons or Repair Service office to whom reports of service failure are to be given.

Alarm arrangements provided in CDO's may be of different types, but represent equipment trouble of some kind. A Minor Alarm usually indicates trouble that affects only one subscriber or line; a Major Alarm will indicate trouble affecting a large number of subscribers or the entire office.

The alarm signal may come into the Operator Office on a specified zero trunk, or on specially designated trunks, and are sometimes arranged to come in as a flashing signal. If an alarm condition exists the operator hears a dial tone when she answers the signal. She then dials an Alarm Checking Number in the CDO which returns a tone to the operator.

The type of tone received indicates the nature of the alarm. Reference to positional information indicates to the operator the action required for the tone which she heard. If the signal tone indicated total failure of the equipment, immediate action should be taken to provide for clearing the trouble and putting the exchange back in service.

In the operator office, great emphasis should be placed on the possible emergency nature of alarm signals. During the period of a complete failure no one can make or receive calls. Operators should also be alert to detect any unusual conditions on calls to or from the CDO, such as difficulty in reaching the office over any trunks or absence of incoming calls on a particular trunk.

As a precaution against the failure of the alarm sending equipment, it is desirable that a daily check be made by dialing the alarm checking number. Our company instructions provide for a twice daily check by the Operator Office of all CDO's.

Emergency Services

WHEN a manual exchange is converted to community dial operation and operator services are limited, though available at a remote point, the handling of emergency conditions becomes a very important phase of the conversion planning.

There are a number of points which require particular attention. The method of showing the listings in the directory should be such as to be readily apparent to all users. If specific fire and police numbers are shown, the user should also be directed to call the operator if any difficulty is experienced. Where the community depends on volunteer fire or police protection, and there is no certainty that a particular telephone can be reached at all hours of the day, a line with several off-premise extensions (without dials) has been used with success by some companies.

Please turn to page 52

NUMBER 45

Double Petticoat. These insulators are employed for all toll and trunk circuits that are greater than ten miles in length.

First choice

on communication lines of the world

Since 1870, when Robert Hemingray began mass production of screw-thread insulators, Hemingray has pioneered most of the insulator developments to keep pace with the requirements of the communication systems of the world.

Today, as always, Hemingrays are world standard for quality, and most of the overhead telegraph and telephone lines of the world are carried on *dependable* Hemingray Glass insulators. They are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

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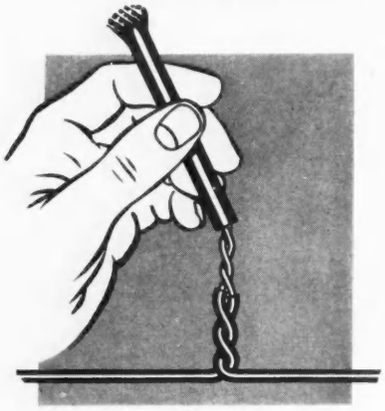

"Super-Splice" makes splices waterproof . . . from inside out!

Sealed at one end, this plastic splice sleeve is filled with an insulating and waterproofing compound.*

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Prevent leakage currents and breakdowns in the presence of moisture...good for 25,000 v.d.c. Order "Super-Splice" NOW!

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"Super-Splice" is available for use with straight, butt or bridge splices.

For further information on economical "SUPER-SPLICE", write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

Community Dial Offices

(Continued from page 50)

This arrangement provides reasonable assurance of 24 hour service, since the stations will be free for incoming calls. In addition, the line may be provided with an extra loud bell or gong which is located at some central point in the business area to serve as a general alarm.

Some companies make provision for handling emergency calls to lines that are out-of-order. If the Telephone Company maintains a local representative, arrangements might be made to have him provide messenger service in such cases.

Among the unusual emergency conditions which should be considered is the possibility of complete office failure, failure of the trunks to the Operator Office, or an overload on trunks due to a catastrophe. One method of providing an emergency channel to the Operator Office is by means of a magneto telephone in the CDO which can be switched to a trunk to the Operator Office.

If the CDO has access to another office where operators are located, this office might be designated as an emergency operator office. It is very necessary that provisions be made for handling emergency calls at all offices having trunks to a CDO.

Dialing Information

SINCE A LARGE percentage of subscribers in a CDO have party line service, and the neighborly calling is apt to be great, particularly in a rural area, it is very important that customers be thoroughly instructed in how to place reverting calls and know how to identify the other parties on their line.

Many companies issue a Customer Instruction pamphlet or card at the time of cutover which furnishes subscribers with dialing information, Emergency Call numbers, instructions for making Out-of-Town calls, both free service and toll, and for making Service calls, such as the business office, information and repair service.

It is equally important that the installer or other company representative give dialing instructions and be able to answer customers' questions at the time the new instrument is installed and as requested prior to cutover. Where instruments are installed some time in advance of cutover, it is desirable — if personnel are available — to call all customers by telephone shortly before cutover and, if necessary, arrange for further instructions. The more thoroughly familiar the potential user is with the "new gadget" the fewer will be the service complaints after cut, and the fewer will be the customers who try to talk into the "wrong end" of the handset.

At the Operator Office, reverting call information should be available to operators on their switchboard bulletins or at the information desk.

A number of months ago, a popular small magazine carried a reprint of an article entitled "Goodbye Central." It was a delightful humorous account of the services rendered to the community over a period of years by the "Central" at a small exchange. There was a touch of pathos and nostalgia for a period that was passing. Many smaller communities were mirrored in this article, and very real indeed to many subscribers is the loss of the personal services which they receive from the manual exchange.

To cover the gap left by such loss.

EDITOR'S NOTE

Several of Miss Richards articles have been reprinted as a 100-page book titled—"A Guide To Effective Traffic Management Methods." Copies of this attractive, illustrated book are available at $3.00 per copy. Order from Readers' Service Dept., TE&M, 7720 N. Sheridan Rd., Chicago 26, Ill.

Telephone Company Management people often assist in the establishment of a "Leave Word Service" to serve doctors and other business places that do not have full time answering service for their telephones. The answering service guarantees 24 hour service and accepts calls for the patron of the service. The patron of the answering service may advertise the alternate call number and may arrange for a directory listing something like this: "If no answer call ———— (answering service number).

Just recently I learned of such a business venture established by the replaced Telephone Operator of a small exchange. The switchboard had been in her home for years and she with the help of a sister had been "Central" to a few hundred subscribers for 365 days of the year. With the aid of the Telephone Company — the old switchboard was outfitted with a couple of terminating trunks—and they were in business — still serving "their" town with personalized service.

See you next month.—*Ruth Richards.*

STANLEY J. MAHURIN, formerly district manager for Gould batteries, has been made Los Angeles sales representative for C & D Batteries, Inc. Mahurin has diversified background as an advertising copy writer, radio announcer, in professional color photography, in the manufacture of liquid detergents, and as a professional musician. Many in the Los Angeles area also know Mahurin in connection with the annual Catalina Island speedboat racing regatta.

Revenue Boosters

A New Service

A NEW TIME and money saving service was offered to Bell System business customers with the launching of a semi-automatic message relay system, appropriately called the *"Bell-Fast."* Announcement of the high-speed, low-cost private line system was made in several business magazine advertisements.

Any business requiring fast communications between cities will find the *"BellFast"* particularly suited to its needs. It quickly and accurately transmits to several cities simultaneously all types of business messages — sales orders, inventory records, production schedules, and statistical data from punched cards. The information can be received as page copy or punched tape (for data processing).

This is how the *"BellFast"* works. A message in the form of a punched tape is placed in an automatic transmitter at an originating station and then passed to a relay center. From here, the tape is put in a transmitter connected to the destination stations and sent on its way by merely pressing a button. Messages can be directed by push buttons to several stations on one circuit or on several circuits — or to all stations simultaneously.

Outlying stations employ standard teletypewriter equipment similar to that used in TWX service. As you can see, it serves the same purpose as private line teletypewriter service — the principal difference being in reduced personnel requirements at the relay center and savings in circuit mileage. This means lower cost to the customer.

Modern Living

WITH A YEAR of intensive merchandising under its belt, Illinois Bell finds that: —

(1) The ratio of Illinois Bell customers having color telephones installed in the home is the highest in the nation.

(2) The number of two-phone homes is rapidly growing. The 1955 gain in Illinois Bell residence extensions was almost three times greater than in 1954. Some 78,000 were gained in 1955, compared to about 27,000 in 1954.

(3) More children are getting their own telephones and are listed in the directory under "child's telephone."

(4) "Hands-free" speakerphones and "Amandas" (automatic answering and recording device) are saving businessmen — and housewives, too — steps and time.

(5) Special telephone services—including school-to-home systems for handicapped children, illuminated dial phones, volume control phones, telephones for explosive areas, outdoor telephones and all sorts of loud bells and gongs — are more in demand.

The growing popularity of extension telephones is revealed by the fact that there is now an extension phone for every six main residence telephones in Illinois Bell territory. Rea-

Illinois Bell has come up with a new term to fit today's streamlined modern living. It's "tele-zone areas"; that is, convenient phones in areas of the home where the family does its living, working, sleeping and playing. The most popular locations for extension telephones are the bedroom, kitchen, hall, living room and basement recreation and laundry room.

Person to Person

Probably in no other business is close contact with the public so important as in the telephone business. Preserving the personal touch becomes more and more essential as the business grows.

Telling people they can always expect courteous, efficient, friendly attention at local business offices is the job of the advertisement across the page. It will be read in July magazines by millions in areas served by all of America's friendly, service-minded telephone companies.

Courtesy and resourcefulness qualify her for the job. Gaye Evans, telephone company Service Representative, obtains information for a customer regarding his telephone service.

PHOTOGRAPHS BY ANSEL ADAMS

She Likes to Help People

A story about one of the telephone Service Representatives whose "voice has the smile" whenever there's anything you'd like to know about telephone service.

One of the nice things about the telephone business is the way it brings us close to people.

Many, many times each day—in your community and in countless communities throughout the land—we have the opportunity and the privilege of friendly contacts with those we serve. Sometimes they are by telephone. Very often they are personal visits.

Among those who have these contacts are Business Office Service Representatives like Gaye (Mrs. Robert) Evans.

"What we like people to do," says Gaye, "is to think of us as their personal representatives at the telephone company. Whenever there's any question about service or a bill or you're moving or needing more service, we're here to help in every way we can."

Gaye Evans' job takes a special type of person. One who is not only efficient but understanding as well.

Gaye qualifies in many ways. Even in her leisure hours, she finds time to help others, especially the handicapped and the needy. Another of her activities is rehearsing a 26-girl choir.

Gaye sums up one of her main satisfactions this way: "It's nice to have people think of the telephone company as a place where they can always find courtesy and consideration. That's our job and we try to be good at it."

Helping the Blind. Raising money to provide "Guide Dogs for the Blind" has been one of Mrs. Evans' activities in the Venture Club—an organization of Oakland (Calif.) business women.

BELL TELEPHONE SYSTEM

Twenty Assets Of A Top "Right-Hand" Man

By ERNEST W. FAIR

Use of this check list will help you hire the right man for your assistant.

"SHOW ME an executive who knows how to properly pick his assistant and I'll show you a man not only successful in his post but one who is able to really enjoy life!"

This statement by a management expert accurately describes the man whose worries are minimized, who has leisure to do the things in life he wants, and who seldom has major worries about his business.

Selecting such a top-notch assistant is never easy. Far too often we base our selection on factors which have little if anything to do with his or her abilities to handle the job.

Here, from a lot of study of practical experiences of executives and professional men, are 20 assets which should be part of any such individual selected to serve as one's assistant. They have been proved and tested. They represent the qualities borne of successful procedure in every day business life.

He should have the ability to get people to do things. Much of our own success depends in large measure on our ability to influence others to do the things we desire and thereby lessen our own physical chores. The assistant who lacks this ability shoves the load onto the telephone company executive's shoulders and lessens the latters effectiveness on other tasks that must be accomplished.

Reliability is an absolute requirement. This reliability must be known not only to the executive but to the people who make up our business routine and all of those with whom we have daily business contacts. A man who has a reputation for reliability can accomplish any given assignment much easier than the one who lacks such a reputation. Reliability also assures the executive that his assistant's promises will be kept, that he or she can be depended upon to carry through an assignment to conclusion, and that suggestions he or she gives one are always reliable in themselves.

No "Yes Man" please — for that means too much servility and complete lack of initiative or thinking ability on his or her part. It's nice to have someone always agreeing with everything we say or do, patting us on the back and constantly dishing out flattery — BUT it's dangerous in today's highly competitive world. We often need suggestions or disagreement — even from our assistants — to keep our own thinking in line.

A grasp for detail and the ability to quickly execute detailed planning make any assistant a more valuable individual to the firm. One of the chief reasons for an executive hiring an assistant is to take the heavy burden of such detail off his shoulders and leave him free for major planning, work and executive thinking. If this assistant must have everything planned out in detail for him then his value almost reaches the zero point.

Poise and respect from our associates also helps any assistant get the job done better and with greater dispatch. These are personal assets that compel attention from those with whom we do business. Where an individual possesses them in full measure his or her tasks are always made easier—; co-operation from others is more assured.

A background in the business has much more value to any assistant than commonly supposed. Too often we assume it unnecessary since we feel it can be acquired or we can supply this background in time. Those are the very reasons why it is far better to pick an assistant who already has such background. When this has been done our own valuable time need never be wasted in accomplishing this chore. Then, too, we can never be certain that we have passed along all of the information that assistant should possess to do his or her job properly.

Ambition — of the right kind is always to be desired in an assistant. Without ambition any individual is handicapped in the performance of his tasks. With it he or she will have the spark to try to accomplish every assignment with greater accuracy and perfection. The old idea that hiring an assistant with great ambition was foolish because he or she was sure to leave just when they become of real value to us, has been disproved. Even when this happens that individual contributes so much more while with us than the person without ambition, that hiring he or she is definitely worthwhile.

Willingness to follow orders is of paramount importance. If we must argue out every assignment given our assistant, valuable time is always uselessly wasted. The man or woman who has the quality to accept and follow orders possesses an asset we can never ignore in selecting an assistant.

Properly executing the assignments we give such an assistant calls for a frame of mind with definite willingness. Without it we can never be assured the assigned tasks will be carried out promptly and efficiently by our assistant.

Some executive background in the past experience of the individual so selected is also a definite asset. Often the many tasks of breaking into such a job by someone without previous experience constitutes a serious handicap. If our new assistant does have even a limited executive experience of any kind he or she has the equipment with which to ap-

"They'll never catch me now. They're still down at the last pole!"

Our tired little fox friend is safe at last. Because that line is strung with Amertel 135, that last pole is a long way back.

Amertel 135 is high-strength, permitting longer spans. In bad weather it will withstand greater ice and wind loads than ordinary BB wire. It's better in other ways, too . . . superior transmission qualities, lower installation cost, lower maintenance costs.

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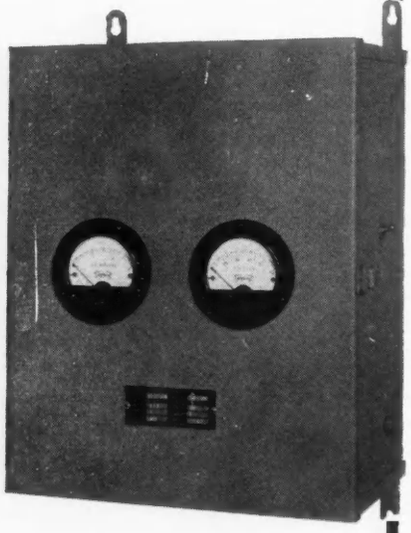

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proach these new tasks much more efficiently.

High capabilities of loyalty are absolute prerequisites for any good assistant. An individual whose whole attention is focused on his or her own interests and is devoid of any intrinsic loyalty to the executive has little value no matter how many other assets he or she may possess.

Such loyalty is something which is most difficult to acquire although it can be heightened by continuous contact between an executive and his assistant. There should, however, be a degree of such loyalty as a definite part of the individual's make-up from the very start.

Dress and mannerisms are important in a number of ways. The effect they have on others is, of course, of vital importance. But even more important is what effect such dress and mannerisms on the part of a prospective assistant have on you or I in the first place. We can work much more closely with a man or woman who does not, in any manner, "rub us the wrong way."

Punctuality and dependability are traits of character which have high value in any person who will serve as our assistant. The lack of either asset can not only be costly in the operation of our job but will be a constant cause of irritation. Punctuality and dependability are two traits of character which have equal impression on others also; the people with whom our assistant may have to deal in performing the duties of his or her job.

Some knowledge of modern executive machines and systems is another good asset for any prospective assistant to possess for even in the smallest office modern business machines have become an important part of the operation of that office. If our assistant has such background he or she will need no instruction and will be fully versed in putting these business tools to their proper use.

Freedom from neurosis is another asset too infrequently sought for in selection of executive assistants. The individual loaded with phobias is never capable of being such as assistant; cannot be depended upon and seldom is using his or her capabilities to full power.

Initiative is difficult to discern in an individual without being around that person for a considerable length

"Even if you're on the right track, you'll get run over if you just sit there!"

of time; it is an asset very definitely to be desired in our assistant. It will always pay to check into the background of a prospective assistant for evidence of such initiative; the information we obtain will always be more than worth the effort or expense required to do such checking.

Settled interests and goals mean any individual is moving along a definite plan toward a distinct goal. He or she will be worth much more to you or I as an assistant than the person who is still sailing aimlessly about and has acquired no such fixed interests or goals.

Control of personal financial problems is another most important asset to be desired in one's assistant. The individual who has not mastered this important part of his or her life is apt to bring such indecisions right onto the job and cause endless difficulties in the execution of his or her duties.

A person lacking control of personal financial problems is always beset by difficulties which interfere with the proper performance of his or her job. This situation is definitely to be avoided.

No "chips on the shoulder" on the part of the individual under consideration is also an asset very much to be prized. Such people seldom are able to think rationally and do their jobs efficiently if they must deal with other human beings in the execution of those jobs.

Extra interest in the business is something always to be looked for in a prospective assistant by any telephone company executive. The individual working in a field of his or her choice is always a much more efficient person. The one who has no such extra interests can never be depended upon to exert that little extra effort which will be required from time to time.—**Ernest W. Fair.**

Remington Rand

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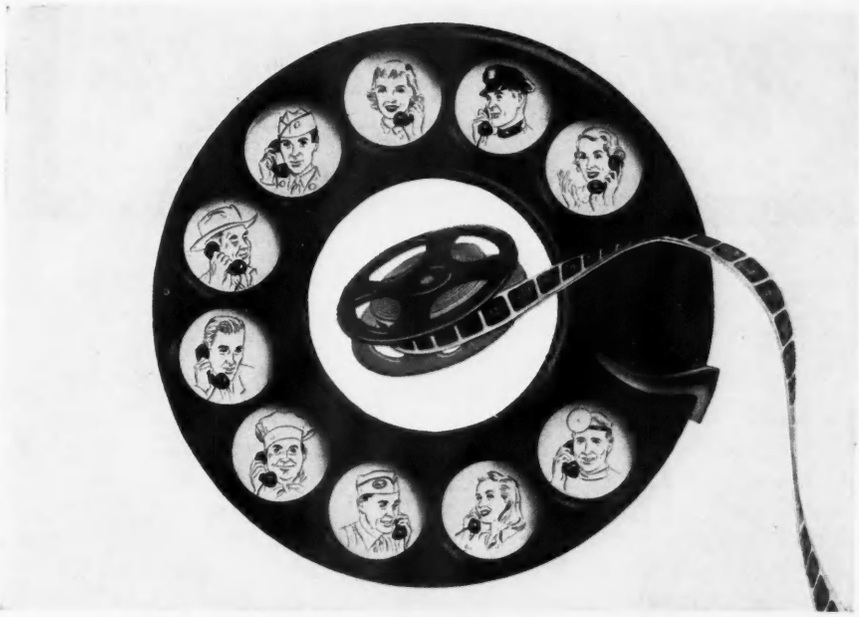
For Greater Profits Through Lower Costs



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for Citizens Telephone Co. of Decatur, Indiana

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Ticket storage and filing operations are also eliminated with sizable savings in labor! Microfilm records for nearly 2½ years of operation are now stored in less space than was formerly needed for filing toll tickets for a 6-month period.

Administrative savings the first year of operation paid for the microfilm equipment. What's more, the new method of handling toll tickets has brought about improved service to subscribers. Microfilming the Remington Rand way brings fast, accurate billing at reduced cost! For details, Circle CH842.

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A SAFETY BELT

May Save Your Life

By RICHARD ALLEN

LOWERED casualties in minor accidents and prevention of loss of life in major accidents have been the rewards for use of safety belts in telephone company trucks. Now three insurance companies are offering rate reductions on automobile and truck insurance when cars are equipped with safety belts. Standard Insurance Co. of Tulsa, Industrial Indemnity Co. of San Francisco and American Travelers Insurance Co. of Oklahoma City were the first three companies to announce either lower rates for bodily injury and medical payment insurance on cars and trucks equipped with safety belts, or increased benefits without additional premiums.

This recognition of the value of safety belts makes it advisable for every executive to seriously consider their use in his own trucks. Belt use where truck drivers must climb in and out of the cab many times of the day will probably be useless for men will ignore them because of their inconvenience. However, where the telephone company's trucks make longer hauls safety belts are well worth considering.

However, it is important that the safety belts possess certain features or they will be almost useless . . . just any safety belt will far from accomplish the desired ends. Safety belts and their use in truck operation have received many tests and a lot of expert consideration lately. From these tests and surveys as well as analysis of actual safety belt use in cars and trucks here are a number of suggestions which the executive can advisably take into consideration insofar as his own plans are concerned.

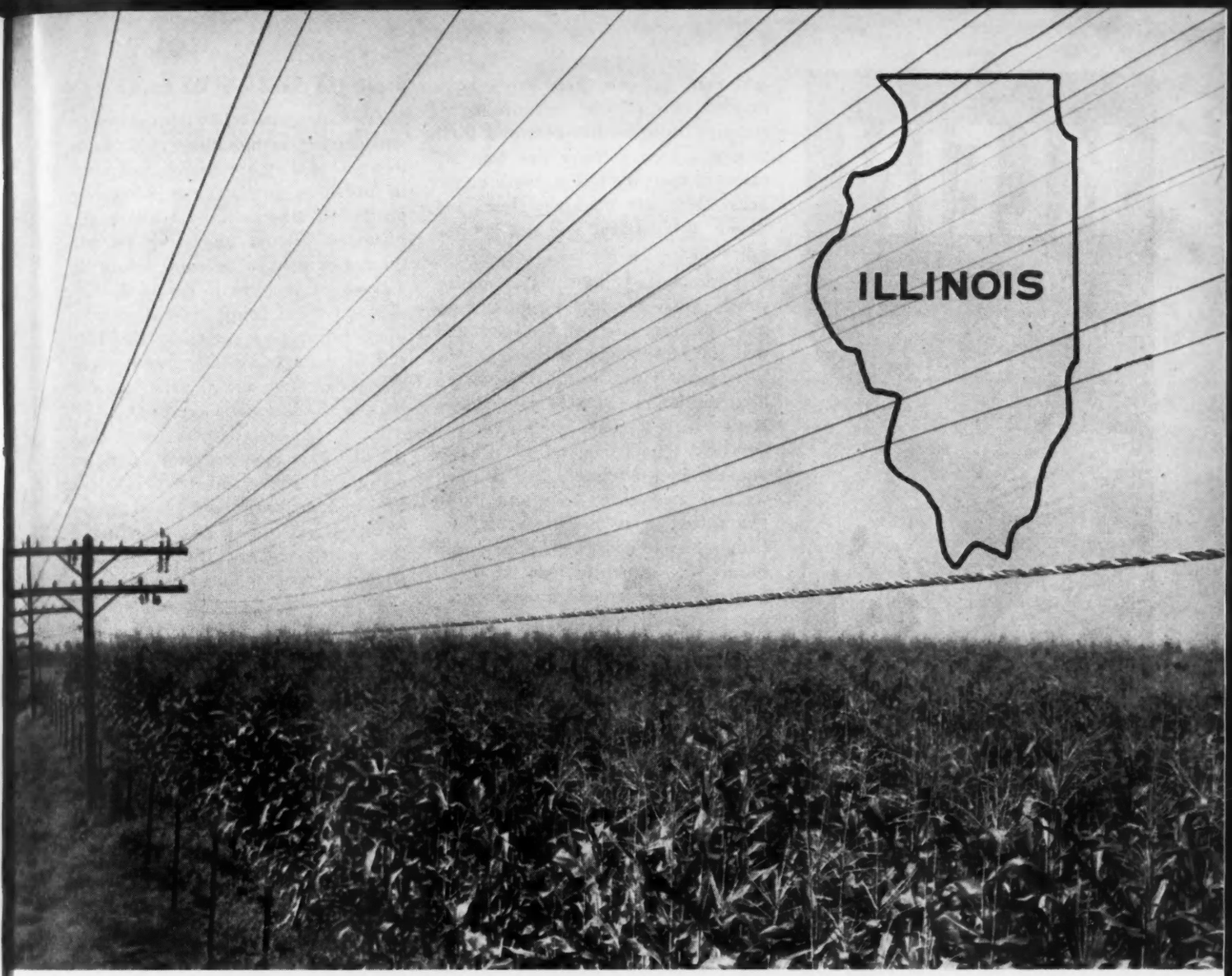
It is important, for example, that only one person should be restrained by each belt and that the belt should be adjusted snugly to allow not more than four inches forward hip movement. The forward thrust in an accident will be slightly different for each person and his body must be snugly held by the belt to break the terrific force.

Second point of top importance is that the belt attachments should be made directly to the frame if at all possible to do so for its maximum effectiveness can be obtained only through such rigid fastening. If direct attachment is not possible the belt should be rigidly mounted to a part of the truck that is firmly and securely connected to the frame itself and which will not buckle during an accident.

It has been found that any other attachment will reduce the belts safety factor to a very low point. Too often belts have been fastened to parts of the truck which move forward as a unit at impact or which either break or buckle during the accident and provide very little restraining force for the man in the cab.

Most frequent mistake that has been made in safety belt use has been in attaching the belts solely to the truck or car seat. Studies have shown that in even the mildest type of accident moorings of seats are usually broken. Actually more injury will result under such an arrangement due to the added weight of the seat being applied to the forward thrust of the driver's body during the accident.

As safety belts are becoming more



400-foot spans

Made possible with polyeythlene-covered cable

Excellent results are reported with 400-ft spans for polyethylene-covered telephone cable in this section of the Midwest. Cables of older construction have usually required 240 ft. spans.

Cable with polyethylene insulation and vinyl plastic jacketing has now been in service in this area since 1953. The extremely light weight of polyethylene has brought several related economies, including a five-foot reduction in pole height, elimination of guy wires and messengers, faster handling of cable, and less land clearing. In winter, the high strength-weight ratio of the cable construction has cut damage from ice and sleet loading.

These improvements are typical of the favorable experience reported by users of wire and cable covered with BAKELITE Brand Polyethylene and Vinyl Plastics. The outstanding dependability of these materials has been confirmed by extensive use on signal control cables, utility line wire and service drop, power cable, and coaxial cable. These materials meet REA requirements for plastic-covered telephone wire. Also, IMSA specifications for fire alarm and signal control cable; ASA standards for weatherproof wire; and ASTM D1238-52T Type II, dielectric materials.

Much of this information, of direct interest to the telephone industry, is reported regularly in Bakelite Company technical publications. They are available without cost, cover both polyethylene and vinyl for wire covering. Keep up-to-date on recent developments, write Dept. RN-183

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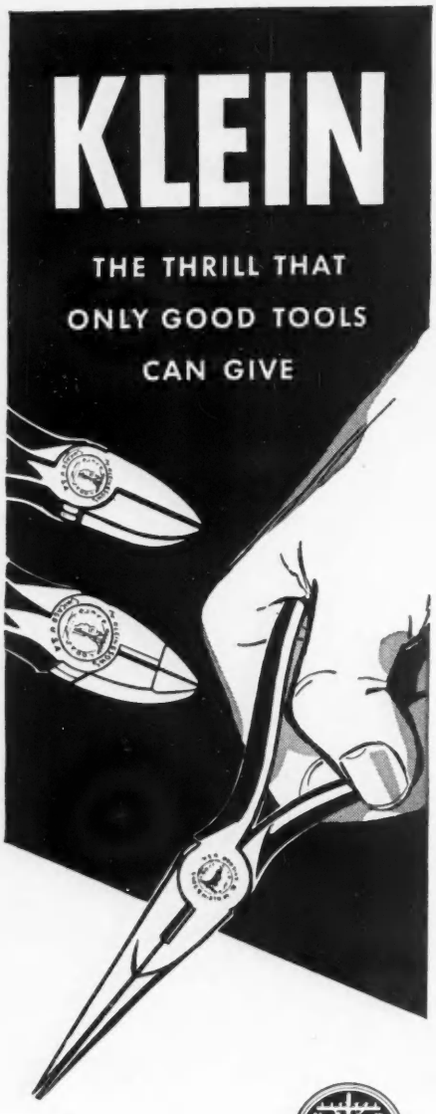

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and more popular there are a large number of "quickie" manufacturers stepping into the business and their products are anything but safe because of the very low strength of the belts they are making. Just any strong webbed belt will not get the job done.

A recent study by the Automotive Crash Injury Research Group of Cornell University Medical College found that the closed loop strength of the belt assembly and installation should be a minimum of 3,000 pounds and static tensile strength (i.e., tension in the belt) should be at least 1,500 pounds. It is advisable that the belt we buy meet these tests and be so guaranteed by its manufacturer. The fittings should resist belt slippage and failure for a tensile load of 1,500 pounds. These specifications should cover attachments, take-up devices, buckles, etc.

Another point that should be watched very closely is to make certain that the belt selected is wide enough to do the job *and* not so narrow that, in its restraining action, it can do internal harm to the driver by itself. Experts recommend that belt parts which are to be in contact with the body should be not less than two inches or more than four inches wide. It is also vitally important that belts fit properly and that the belt should provide its restraint to the driver's pelvic region in a direction rearward and downward in a line approximately 45 degrees from the horizontal and parallel to the side of the truck.

This also calls for utmost care and caution in mounting these belts to see that they are aligned properly in order to provide the foregoing protection automatically without adjustment. Should alignment be off the driver may suffer extra injury in a crash not to speak of the possibility of great force being exerted on one weak point and snapping the belt rather than being distributed over the entire web and equally against both of the fastener mountings.

It is also best to make sure that the buckle is foolproof and simple to operate. A complicated buckle will lead to discarding the belt's usage by truck drivers. Experts recommend that a force not exceeding 45 pounds should release the buckle while a tensile load of 125 pounds remains on the belt after it has been subjected to a tensile test load of 1,500 pounds.

Recent statistics reveal several points of interest in the use of safety belts. Many truck drivers believe the belts real protection comes only in an accident involved in excessive speed. These statistics show that the majority of fatal accidents happen between 30 and 40 miles per hour when a car comes suddenly to a full stop and a person hits the windshield with his head.

A safety belt offers protection to the driver *all* of the time and not just when he is moving along the highway with a heavy load at high speed.—*Richard Allen.*

"Well, there's your phone. You can get rid of your drum now."

Growing up – *together*

In 1897, independent telephone companies, sprouting up at an amazing rate, banded together to form their first association. That same eventful year, Kellogg Switchboard and Supply Company was also born.

For 58 years now, Kellogg and Independent Telephony have been growing up together — companions dedicated to meeting the nation's demand for more and better telephone communication. Their close relationship did much to overcome the tremendous odds that faced the young Independent during the pioneering days of the telephone industry. This same cooperative spirit is helping to improve and advance the Independent Telephone Industry as a major force in American business life today.

Kellogg's contributions have been the methods and devices for improving the Independent's service to its customers. Many have become Telephony's most important achievements—"four-frequency" harmonic systems, cradle type telephone instruments, straightforward trunking, and most recently, Kellogg was first to develop and produce Crossbar for Independents. It is this kind of scientific development that will help Kellogg and Independent Telephony grow together in the future as they have in the past.

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"Merchandising"

(Continued from page 35)

Again, a preliminary survey has indicated that many of our customers do not have any concept of the cost of an extension telephone. Most of those queried indicated that they thought the cost was much higher than the actual rate. As in the earlier example, we realize that further study is needed before we can reach a final decision, and we have initiated plans to make such a study in the very near future.

Distribution

CONFRONTED with an almost insatiable demand for service, telephone companies have, over the years, been content to wait for the customer to come to them. Now, with continued emphasis being placed on selling, we feel that it is time to think conceptually in an effort to discover other channels of distribution besides the local business office.

One of the most intriguing possibilities that we see at the present time is the modern supermarket. Can we set up an attractive display of colored telephones in the busy supermarket, assign an attractive commercial girl to attend it, and successfully talk Mr. and Mrs. Consumer into an impulse purchase of an additional telephone for their home? We think we can, and believe that our chances for success will be increased considerably if we can let the housewife look over all of the colors, select the telephone she wants, make an installation appointment, and then take the telephone home with her. We also feel it will be helpful if we can work out a budget arrangement enabling the purchaser to spread the one-time installation charge over a period of months.

A little long range perhaps, but still worthy of mention is the possibility of working with contractors in an effort to get new homes completely prewired for telephone service with outlets for a telephone in every room. Consider for a moment the number of electric outlets in the average new home. Why can't we have the same sort of an arrangement with telephone wiring?

One telephone company has already gone a step further and arranged to have a few new homes completely equipped with telephone service, including several extensions in color, before the home is placed on the market. The cost of the initial installation and one year's service is included in the mortgage.

Undoubtedly you can think of other ideas along this line for there are many other possibilities; but these two examples should give you some idea of what we in the merchandising group are looking for in the way of improved distribution.

Well, in short, that just about describes how we see merchandising fitting into our operation in the General Telephone System. From this brief description, it is apparent that the job we plan to do will in no way duplicate the functions of any other department in our organization, although it will of necessity require very close cooperation to be successful. Recalling our original definition, our job then is to search for ways to improve all the functions of the marketing process, and to coordinate the activities of our operating departments as they carry out these functions so that we do the most effective job possible of getting the *right* products to the *right* places at the *right* time in the *right* quantity and at the *right* price.

You will recall that I titled this article MERCHANDISING: DEFINED, DESCRIBED, AND DEFENDED. I have defined merchandising as we see it in the General Telephone System. I have described the way we plan to operate and some of the things we hope to accomplish. Now, remembering that we want to operate our business as efficiently and profitably as possible, and realizing full well that however we look at it, our merchandising program is going to cost money, I feel that I should defend the expenditure required.

I touched on this subject earlier when I mentioned that once the consumer had his primary installation he became a far more discriminating buyer. Now I'd like to elaborate.

Generally, when we think of our total market we think of it as being sub-divided into the following segments—residence, residence rural, small business and large business. I

think it is important to recognize that there is another major division that can be made, not as clear cut perhaps, but very real nevertheless, and fundamental to the telephone company interested in a sales program.

At the present time 72% of the American homes have primary telephone service. By 1965 statisticians estimate that 83% of our homes will have at least one telephone, and I think that you will agree that by far the great majority of these telephones will result from unstimulated demand installations — that is, customer initiated requests for service. Generalizing, it follows that the average telephone company should be able to sell at least one telephone to 70 to 80% of the families in their operating territory without any sales effort. Of course there are exceptions, but on the whole, I believe this is a reasonably safe conclusion to draw from these statistics because the average person considers the primary telephone a necessity to insure protection of the family and the home.

This, then, is one division of the market — the primary installations which are generally considered necessities. Here the customer doesn't have much choice. The exclusive frachise that we enjoy precludes him from shopping around. He is ours with no sales effort whatsoever. For lack of a better term, let's call this the primary segment.

Now, let's turn to the other segment of our market, which is the market for any item of service that we want to sell in addition to the primary installation, and which I have labeled the convenience segment.

It is readily apparent that there is all the difference of night and day between these two segments, for as soon as we get out of the primary market and into the convenience market our exclusion franchise or territorial monopoly becomes absolutely meaningless, and we are in direct competition with every other business organization that is after the money the consumer is willing to spend on convenience items.

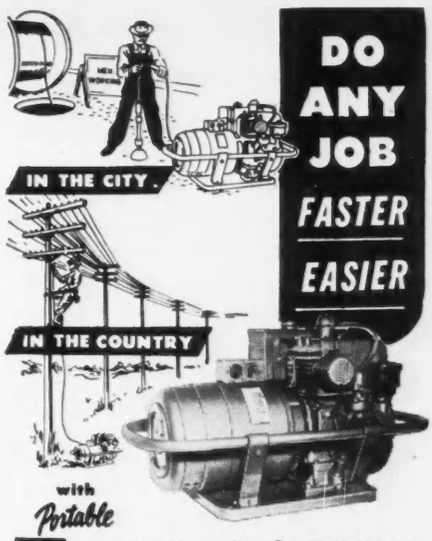
What does this mean? Well, if we can assume, for example, that most families look at their first automobile as a necessity and the second as a convenience, then it means we must compete directly with the big three of the automotive industry for the money the consumer is willing to pay for convenience. We face similar competition when the consumer considers a second radio, a second television set or a second bathroom Now, I'm not so naive as to think that our customer sits down and consciously weighs a second automobile or a second television set or some other convenience item against a second telephone. But his discretionary spending power is limited and with myriad opportunities to use it, he does have to decide somewhere along the line where his excess income shall be spent.

Apparently we haven't fared very well in our battle for this money to date, because there are more families with two cars than two telephones and there are more television sets in use than primary residence telephones. Recently, several of the large TV manufacturers have added a portable 8½ inch television set to their line. The avowed strategy of these companies is to shake loose not only the second set market, but also the third and fourth set market—to make television as popular as the radio in the American home. During the last quarter of 1955 General Electric sold 250,000 of these sets. Admiral expects to sell 600,000 of these sets this year. Reports of this nature make it perfectly clear that competition for the consumers' discretionary spending power will not abate, at least in the forseeable future.

Well, to make a long story short, we realize that we must be equipped to compete more successfully with American Business if we hope to win a large share of the consumers' dollar. Most of our competitors, with long experience in hard selling, have a tremendous advantage in sales know-how. In addition, they are channeling millions of dollars each year into market research and advertising in a continuous effort to find ways and means to get a larger share of the same consumer dollar that we want.

Cognizant of these facts, we have organized a merchandising group in the General System to help us compete favorably, and as I see it we won the hardest part of the battle the moment we recognized the need for such an organization.—*T. S. Gary*

"Every duty which we omit, obscures some truth which we should have known."—Ruskin.



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No matter where or what the job, a Katolight Portable Power Plant will simplify and speed up construction or maintenance work by supplying quick dependable electrical power right on the spot. Operates blowers, heaters, drills, hammers, saws, soldering irons, other portable electrical tools and equipment. Eliminates power line hookups.
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"HOLDS WIRE SAFE AND SECURE"

For "JK" Wirt .....Use 63B 5/16" Staples
up to 11 Strand Cable Use L3M 7/16" Staples
Up to 16 Strand Cable Use L3D 9/16" Staples

OTHER USES — Stapling Drop Wire, Metal Numerals, Signs, Screens, Building Repairs and Maintenance, Etc.

SIZE	8 per pkg.	15 per pkg.	30 per pkg.
L3B 5/16" Leg	$2.80	$2.60	$2.40
L3M 7/16" Leg	3.05	2.85	2.60
L3D 9/16" Leg	3.30	3.15	2.95

STAPLES PER PKG. — 5000 . . . Sizes Can Be Assorted For Quantity Price . . . Discounts In Larger Quantities.

MARKWELL MFG. CO., INC.
Established 1919
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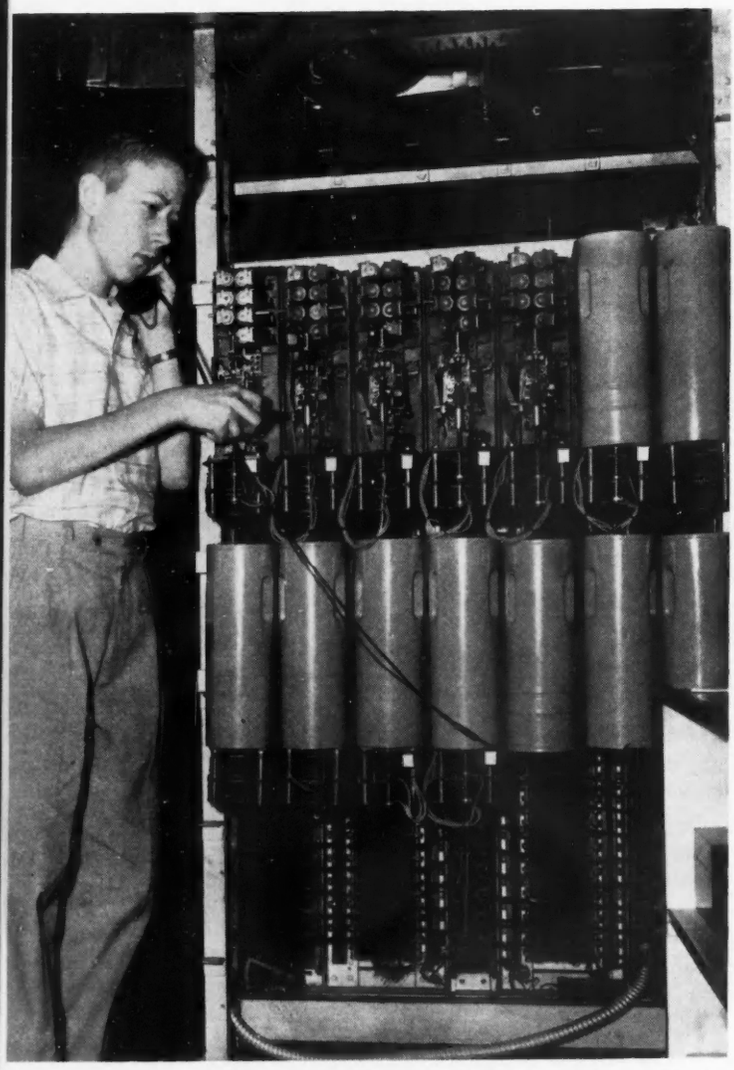
200 Hudson St. New York 13, N. Y.

In the busy town of Des Moines Jim Marcusen, age 15, supplies a long wanted service - - - - - - -

Telephones For Teen-Age Subscribers



Switchman JAMES MARCUSEN proprietor of the Chautaugua Park Telephone Co., Des Moines, Ia., checks a connector switch in his central office.

NO MORE pioneers in the telephone field? No young people, learning things the hard way anymore? No more real combination men, "grunts" to commercial, who know this business inside and out because they've grown up with it?

Four years ago, James Marcusen, proprietor of the Chautaugua Park Telephone Company, Des Moines, Iowa, had an orange crate, some magneto drops, some war surplus, soundpowered handsets, an idea and some ambition. He was 11 years old at the time. Young Mr. Marcusen was about to supply suburban Des Moines with a long wanted service — Teen Ager Telephones.

Within weeks, the orange crates and drops became a magneto switchboard. The soundpowered handsets were converted to magneto telephones and C. P. T. Co. was in business. Today, at 15, James has a modern dial plant serving teen-age subscribers in a radius of four and one-half blocks from his home in Chautaugua Park.

Regular Telephone Problems

STURDY, blond James Marcusen stands squarely on his feet, chin high as he talks. Questioners may incline to deal lightly with his novel project. His thoughtful, deliberate responses quickly bring the realization that James is dealing with any telephone man's everyday problems.

Busy hour? "Just before school, just after school, before they're going someplace. Mostly they are talking about what they're going to wear, what they're going to do."

Breakage? "I try to give the old, beat up sets to the rough ones. Some of the telephones stand up better than others. I try to get that kind."

Excessive holding times? "Best answer I've found is to shorten the handset cord to about eighteen inches. That makes them pretty uncomfortable, holding their heads that close to the sub-set."

"Another thing I do," says Marcusen, "is to use a

BILL MILLER, Secretary-Treasurer of Iowa Independent Telephone Association, watches from the ground while lineman MARCUSEN makes terminal test.

straight uninterrupted ring. You'd be surprised how soon they answer."

Despite some grim measures for traffic control, service is the watchword and 12 of James' 21 subscribers avail themselves of his morning wake-up service — no extra charge. In the evening, musical programs from James' record player are accessible over a subscriber conference network.

Do parents like the system? They love it! "It lets them use the Bell phone," says Jim. "I was out of service one day because of a blown fuse. The mothers were going crazy, trying to use their own phones."

The 21 subscribers range from 12 to 19 years of age. The daughter of W. F. (Bill) Miller, secretary-treasurer of the Iowa Independent Telephone Association is an enthusiastic subscriber. James was recently made a junior member of the Association. This assemblage of rough and ready Iowans happily recognize him for what he is, an Independent.

Growing Pains

THE ORIGINAL orange crate magneto switchboard was outgrown early. James bought a surplus 12-line army field board which served until 1955 when "held orders" became a problem. From a sympathetic Independent manufacturer's representative, James learned of a 25 year old Strowger dial system which had been taken out of a local insurance building.

Until the arrival of the automatic equipment, James' father, district manager for James R. Kearney Corporation in high voltage pole line equipment sales, had cooperated. A solid ton of switchgear was different. "We'll put it in the garage first," said father Oscar, " 'till we see whether you can make it work." Within days and lacking complete drawings, James had it working — and to the basement it went. Now expansion problems are relatively simplified, the board will accommodate one hundred subscribers.

With growth, some new connectors will be needed to handle additional traffic. "Had to cannibalize a few to rebuild the rest," explains James.

What about your distribution system? "The power company allows me on their poles as long as I observe telephone company practices. But mostly I run my lines on trees."

Neoprene parallel or twisted drop wire is James' standard. A 26 pair entrance cable from a protected terminal brings the lines into the basement to a protected mainframe. Full substation protection is used. Did your Dad insist on the protection? "He would have, but he didn't have to. I've seen some pretty sad examples of poor protection myself." The next step on outside plant will be to bunch the drop wire to messenger strand.

Rates? "Fifty cents a month or four dollars per year. But, I'm going to raise them," he adds, "telephones and wire cost more money now — so they'll have to pay more."

Bell competition? Apparently, Northwestern Bell Telephone Company and C. P. T. Co. have gone their respective ways without friction thus far. But — is Bell's recent fanfare of nationwide publicity on separate teen-age listings and telephones a desperate counter-measure? Hard to say, but Independents will do well to get into the teen-age telephone business now.

construction and maintenance DIGEST

- Terminal saves money
- Good cable "adds up"
- These two
- Cross-arms on the run
- Wire saves poles
- 25 years young
- Anti-aging cable
- Profitable noise
- All in a wink
- Button, button

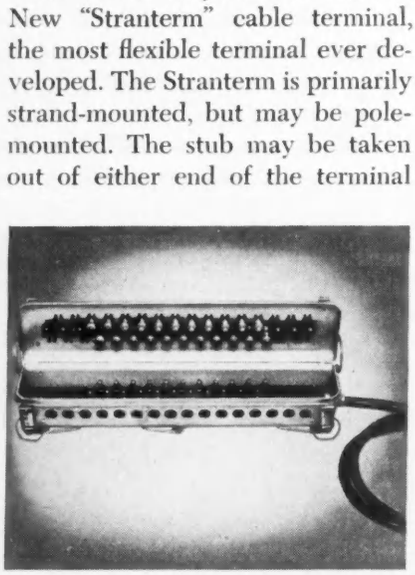
Published every month to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson Company

Two dividends are yours when you order supplies from Stromberg-Carlson. First, you get the protection of a double guarantee—ours and the maker's. This assures you of getting the finest products, backed by our 62-year reputation. Second, your support is used to further the art of telephony. We're knee-deep in this industry as a full-time job, not a side line, and your supply business plays a big part and helps us continue our research for new and better telephone equipment.

Designed for economy

That's the way to describe the New "Stranterm" cable terminal, the most flexible terminal ever developed. The Stranterm is primarily strand-mounted, but may be pole-mounted. The stub may be taken out of either end of the terminal



Strand-mounted cable terminal.

and can be either lead or plastic cable. The core section is gas-tight and moistureproof; the terminal may be protected, **even after installation,** either fully or on a pair-by-pair basis by the addition of Cook's "snap-in" Mini-Gap arresters. The 11 and 16 pair core assemblies are interchangeable and replaceable; and drop wire openings are completely sealed by an exclusive grommeting arrangement. Manufactured by Cook Electric Company in 11, 16 and 26 pair sizes, with 3½ foot cable stubs.

Order from your Stromberg-Carlson representative.

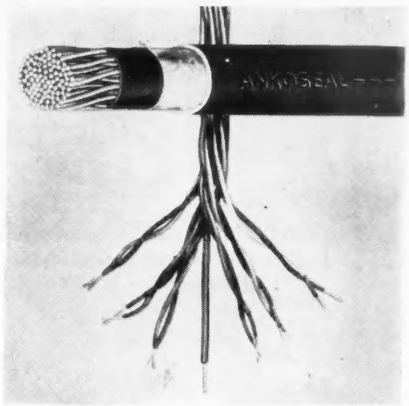
Copper Wire + Paper Insulating Tape + Lead-Antimony Sheath + Accuracy in every detail adds up to—Kennecott Telephone Cable

Accuracy in every manufacturing process is the reason Kennecott Telephone Cable is of high quality. Careful manufacture—attention to the minutest details—result in dependable, long-lasting cable performance.

self-supporting cables

Yes, you **do** have a choice in self supporting cables!

For standard exchange uses, you can get lots of service with the impervious, long-life PVC shield and jacket of Ankoseal type 775-P-SS It's designed especially for permanent installations.



Exchange cable (top) and rural distribution wire are both easy to install.

And for temporary service, you can't beat the speed and low-cost installation of Ankoseal Rural Distribution Wire. Individual color-coded conductors, insulated with polyethylene with a PVC covering, are cabled around an insulated extra high strength galvanized steel support wire. There is no shield or jacket.

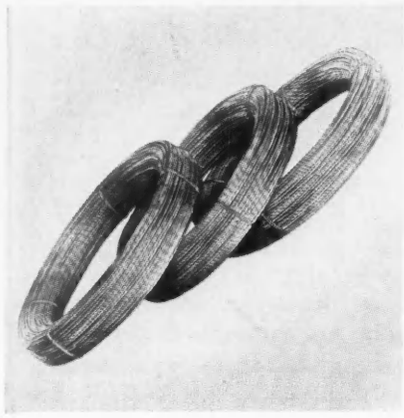
Need that cross-arm "yesterday"?

Nobody—but nobody—can give it to you **that** fast, but we'll make book that Stromberg-Carlson and American Cross-Arm, Inc. can have your order of new cross-arms in your backyard almost as fast as you can say "preservative treated for longer life, greater resistance to stress, decay and warpage."

Why? Because stocks are strategically located. We can ship your needs for standard and special arms in jig time. Try us.

Save 10-15 poles per mile

A net saving of 10 to 15 or more pole structures per mile is possible where **Crapo** High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.

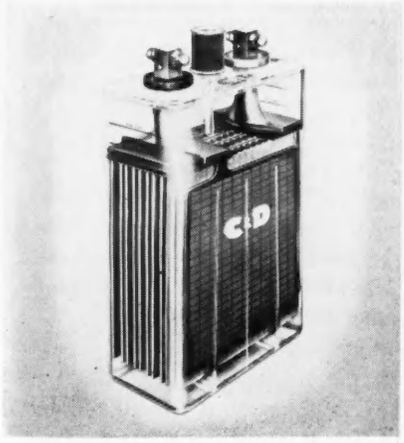


Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

These two battery types give you decades of good service

Here's a dependable power supply for you with a life expectancy of 25 years! It's the C & D Plasti-



This low-cost PlastiCell battery has life expectancy of 14 years. Its PlastiCal counterpart will last you 25 years.

we say it will last 25 years, we're thinking about **full float service.**

You get this extra-long life because C & D PlastiCal (lead-calcium grids) batteries have an exclusive suspended and supported plate construction.

If a 14-year life expectancy will fill your needs, C & D has an economical battery for that, too. It's the PlastiCell battery, using high-tensile lead alloy grids.

In the picture, you see one of these PlastiCell batteries. It's the CE-11 and has a 300 A.H. capacity. In PlastiCal, specify PCE-300.

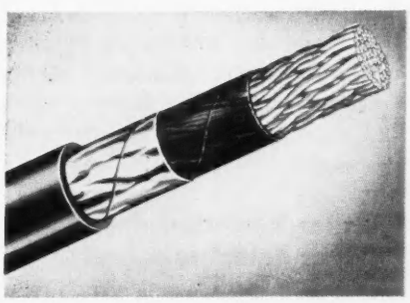
Cable has polyethylene sheath for extra-long life

In outside cable installations, you can side-step the ravages of weather, sunlight and temperature, saving yourself many dollars and hours in maintenance.

To do this, use the protection of the polyethylene sheath on Telecable®. Telecable exchange area cable for aerial and duct use has polyethylene insulation **and** polyethylene sheath. No other thermoplastic material has given as good assurance of aerial cable sheath life expectancy as has polyethylene.

Specially treated to resist sunlight, the Telecable sheath has maximum chemical resistance, is not subject to environmental cracking.

Extremely light in weight, tough, yet flexible, it resists the stresses encountered during installation. You can expect top performance of Telecable for upwards of 20 or 25 years.



Telecable exchange area cable has outstanding weather resistance and transmission qualities.

Available in No. 24, No. 22 and No. 19 A.W.G. in sizes up to and including 202 pairs. For further information, consult your Stromberg-Carlson representative.

Noise can be money!

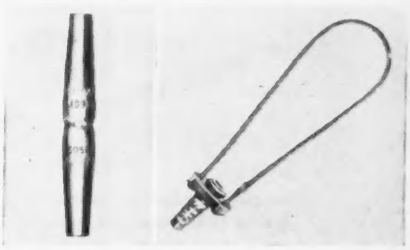
Take a business subscriber who has a telephone in some extremely noisy location—and who has finally decided to do something about it. Would you rather have him spend money in building a soundproofed booth—or give **you** the money as monthly income on a telephone which completely licks the noise problem?

The GAI-PHONE is such an instrument. It has a special transmitter that actually creates a "Zone of Quiet" around the handset—even in a spot as noisy as a boiler factory! It costs the subscriber **less** than a booth—and you get the revenue!

Ask us for complete details.

Wirelink and Wirevise for a good splice or deadend

Today you can complete a splice in less time than it used to take you to think up cuss words while making old-fashioned splices.



At left, Wirelink gives you a good splice automatically—eliminates fussing and fuming during assembly. At right, Wirevise assembles easily around insulator spools and through thimble eye—for good deadends.

These faster splices are made possible by the Wirelink—an automatic-type splice for .109 steel wire.

(Continued on Page 70)

(Continued from Page 69)

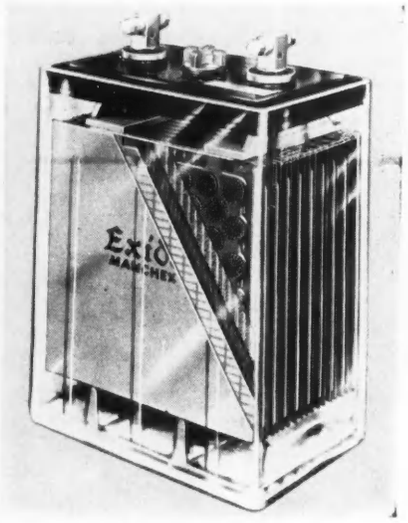
construction and maintenance digest

Another handy item is Wirevise, the "automatic" deadend. Like the Wirelink, it is especially adapted to .109 extra high strength steel messenger supporting 5- and 6-pair Rural Distribution Cable. Easy to assemble around insulator spools and through thimble eye.

Both are manufactured by Reliable Electric Co. Order from your Stromberg-Carlson representative.

Lead buttons mean lower costs

Only Exide Manchex Batteries have the positive plate with the buttons of corrugated lead tightly locked in the lead alloy grid several times more rigid than pure lead. Because of this outstanding design, the plates resist the mechanical strains bound to develop and retain their shape without growing or buckling. There is an ample reserve supply of pure lead which can be converted into active material as needed.



Special construction gives long life to Exide Manchex Batteries.

These and many other features combine to insure exceptionally long, trouble-free service.

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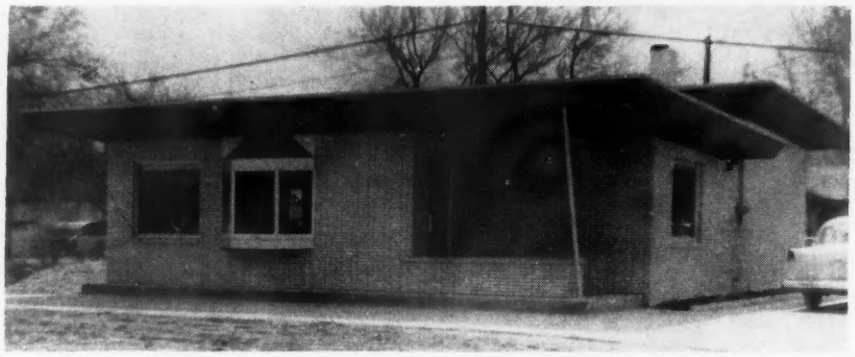

New office and equipment building of the Public Service Telephone Co., Montrose, Mich. Customers may transact business and pay telephone bill without leaving their cars.

Public Service Tel. Co. Completes New Building

A NEW BRICK, modernistic style office and equipment building was recently constructed and occupied by the Public Service Telephone Co. at Montrose, Mich. The new structure was built at a cost of approximately $15,000 and designed to match local architecture, according to Wyman Jennings, general manager.

The new structure also features one of the first, if not the only, "drive-in" telephone business office in the state and is so arranged that a customer may transact business and pay his telephone bill without leaving his car. The cashier's desk is so situated in the business office to permit employes to handle business with customers either at the counter or at the "drive-in" window without changing their positions.

In addition to constructing the new building and moving all of the central office dial equipment from the old building to the new one, the company placed an additional 3,732,960 conductor feet of new cable and increased the number of telephones in service from 727 to 835—a gain of 14.8 per cent during the year—at an estimated cost of $40,000.

Kugler Reelected Pres., Illinois Telephone Assoc.

M. A. KUGLER, Okawville, was reelected to serve a second term as president of the Illinois Telephone Association. Also elected during the annual convention held last month at the Pere Marquette Hotel, Peoria, were: W. R. McGrew, vice president; Ray J. Alter, treasurer; J. G. Hardy, secretary, and Ben B. Boynton, general counsel.

The following Executive Committee was elected: Gordon Aller, R. A. Lumpkin, and Burton W. Saunders.

Directors elected to serve three-year terms were: Ray J. Alter, Intra State Telephone Co., Galesburg; Donaldson Coombes, Southwestern Bell Telephone Co., St. Louis, Mo.; W. C. Drysdale, Eastern Illinois Telephone Co., Rantoul; Donald Anderson, Geneseo Telephone Co., Geneseo; M. A. Kugler, Okaw Commercial Telephone Co., Okawville. Director elected for two-year term: K. L. Schroeder, Northwestern Telephone Co., Freeport; elected for one year: Roland Schmidt, Home Telephone Co., St. Jacob.

The attendance at the convention was approximately 550, with 413 attending the banquet.

Lincoln T & T Announces Managerial Appointments

THE FOLLOWING managerial appointments have been made by The Lincoln (Nebr.) Telephone & Telegraph Co.

G. L. Oglesby has been named area manager at Beatrice succeeding Charles Dickenman, who will retire this fall after having served the company for 45 years. George E. Eggleston, formerly area manager at Pawnee City, succeeds Oglesby as area manager at Auburn. Cyrl V. Clark, formerly exchange manager at Wilber, becomes area manager at Pawnee City. W. H. Husing moves from exchange manager at Sterling to exchange manager at Wilber.

Oglesby joined the company as a groundman at York in 1934 and later held various positions in the plant department of the company until he became combinationman at Auburn in 1941 and Beatrice in 1942. In 1948 he was advanced to the posi-

tion of manager at Wymore and became area manager at Auburn in 1952.

Mr. Eggleston has been with the company since 1942 when he was employed as a shopman in the supply department at Lincoln. He became an installer and repairman in 1943 at Beatrice and the following year was transferred to Auburn, where he was stationed until July 1945 when he entered military service for a year. He returned to Lincoln in 1946 and was assigned to work with dial switching equipment, returning to Auburn as an installer and repairman later that year. He became exchange manager at Pawnee City in 1951 and in 1955 was promoted to area manager there.

Clark was first employed by the company as a groundman at Humboldt in 1946. He moved to Pawnee City in 1948 as an installer and repairman and two years later was called to military service. He served one year as a sergeant with the Army Signal Corps in Korea. He returned to the company in 1951 as an installer and repairman at Wilber and was appointed exchange manager there in 1952.

Husing joined the company as an installer and repairman at Seward in 1942 and was transferred to Weeping Water in 1943. In 1945 he entered military service and served one year with the Army Signal Corps as an instructor in central office equipment maintenance at Camp Crowder, Missouri. He returned to the company in 1946 as an installer and repairman at Tecumseh and was appointed manager at Sterling in 1949.

New Museum Will Honor Alexander Graham Bell

THE ALEXANDER GRAHAM BELL Museum opens at Baddeck, Nova Scotia on August 18th at the site of Canada's first aeronautical experiment, the flight of the "Silver Dart."

The Department of Northern Affairs and Natural Resources is establishing the museum near the spot where the historic flight was made Feb. 23, 1909. J. A. D. McCurdy, who later served as a lieutenant-governor of Nova Scotia, piloted the first plane.

Called the first Canadian public scientific museum, it will be dedicated to the aviation experiments of Alexander Graham Bell and his associates of the Aerial Experiment Association. Among them were Mr. McCurdy, F. W. (Casey) Baldwin, Glen H. Curtiss and Lt. Thomas Selfridge of the U. S. Army.

Lieut. Selfridge was destined to become the first man killed in an aircraft accident after participating in many of Mr. Bell's pioneer experiments. He died in the crash of a Wright aircraft in the U. S.

The museum will also put Mr. Bell's other scientific work in perspective, accentuating the humanitarian approach in all his research. While his discovery of the telephone and his aerial experiments are widely known, the public is generally unaware of Mr. Bell's research in the fields of genetics, medicine, education of the deaf, marine engineering and radiation treatment in cancer.

Mr. Bell spent many years at Brantford, Ont., and Baddeck, Nova Scotia, although an American citizen, and much of his most faithful work was done in Canada. Many relics of his experiments and authentic copies of

When I grow up
I want to be strong
like a T-C pole

You're right, son . . . T-C poles are strong . . . and also long lasting. Strong because they're rigidly selected from the finest stands of Southern Pine . . . long lasting because they're given the most effective preservative treatment so far developed by modern technology. When maximum service life is desired it's a good idea to specify T-C Pressure Treated poles.

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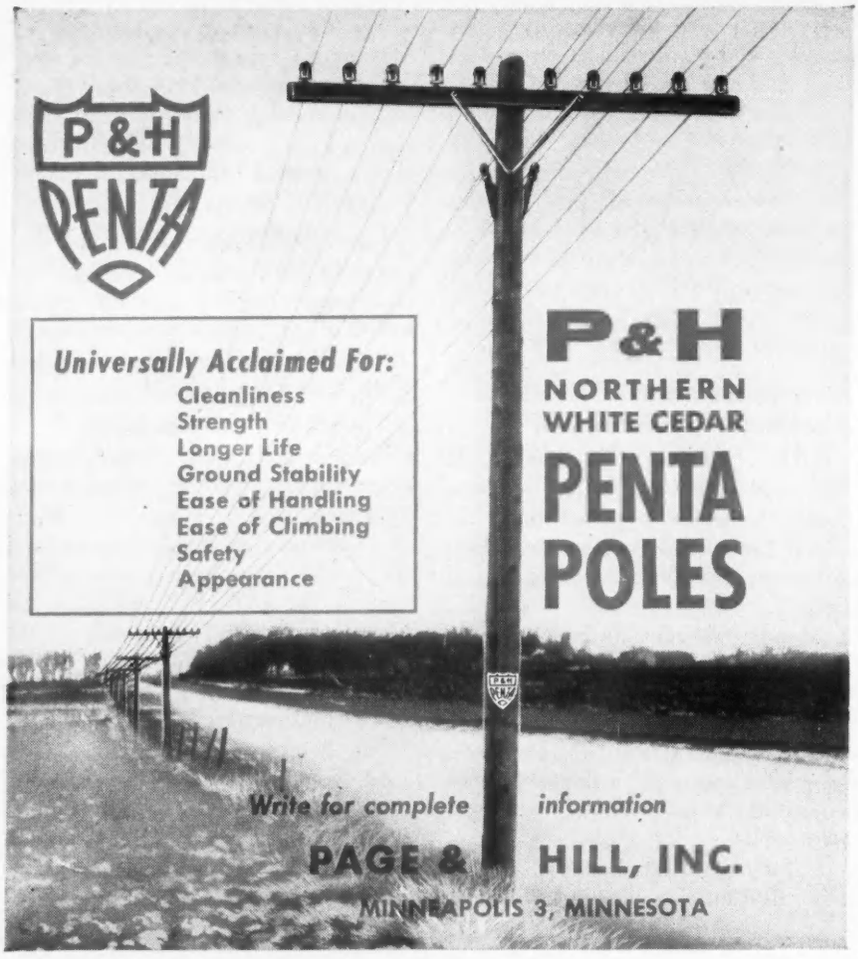

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his records will be on view at the Baddeck Museum.

The museum is not far from the spot where Alexander Graham Bell and his wife are buried.

E. F. Woodward Dies at Bellevue, Ohio

E. F. WOODWARD, 67, general commercial superintendent of Northern Ohio Telephone Co., Bellevue, for the past 23 years, died June 10. He had been ill since last September.

Mr. Woodward had a long career in the telephone industry, working in his early youth with the Washington Court House Ohio Co. Later he was employed by the Newark company during the years he was at Dennison University. Upon graduation there, he became associated with the Kellogg Switchboard & Supply Co., where he remained until 1933 when he accepted the position of general commercial superintendent for Northern Ohio Telephone Co.

He is survived by his widow, Elizabeth; a son, John, of Cleveland; two daughters, Mrs. William Tinsley, Quantico, Virginia and Mrs. James Rea, Auburn, New York; a sister, Mrs. J. Rankin Paul, Washington Court House, Ohio, and 10 grandchildren.

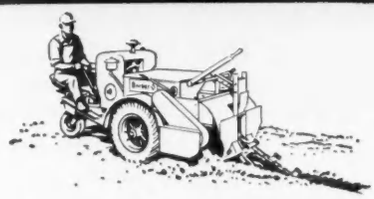
Start Laying Alaska Underseas Cable System

LAYING OPERATIONS have begun on the first underseas telephone cable system between the United States and Alaska.

The new telephone system, a $15,000,000 project undertaken by the AT&T Long Lines Department will include twin cables stretching some 750 miles between Port Angeles, Wash., and Ketchikan, Alaska. At Ketchikan, the underseas cables will be connected with facilities of the Alaska Communication System, a branch of the U. S. Signal Corps which furnishes long distance communication throughout Alaska. From the southern terminus near Port Angeles, the circuits will be carried to Seattle over a new radio relay route provided jointly with the Pacific Telephone & Telegraph Co.

Last month telephone engineers aboard the cableship Albert J. Myer off Port Angeles spliced heavy shore-end cable with deep-sea cable in the ship's tank, and the 7,800-ton vessel started on its way, paying out cable

NEW DITCHER



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Step by step this authoritative book tells you how to select the type of report you should use, how to choose the most suitable forms and style, how to organize the material, and how to use figures, tables and annotations—in short make the report that is clear and understandable and wins acceptance for its ideas.

WRITING THE TECHNICAL REPORT

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Third Edition, 356 pages, 5½ x 8½, 238 illustrations, $4.50

This practical guidebook takes up scores of specific points in the design and composition of the report and gives you exact directions for the setup of both long- and short-form reports, with numerous examples to guide you. In addition, the book outlines a system for the critical examination of the report to help you make sure it will meet the requirements of those who will read and use it.

Telephone Engineer Publishing Corp.

7720 Sheridan Road Chicago 26, Illinois

at the rate of six nautical miles an hour.

The new telephone system is scheduled for service late this year. It will provide 36 voice circuits—more than twice as many as are now available between the U. S. and Alaska over radio and land line facilities.

General of Southwest Reports New Rates

THE FOLLOWING rate increases were granted General Telephone Co. of the Southwest during May, 1956:

Effective May 1, 1956

Exchange		Old Rate	New Rate
Christoval, Tex	Bus.-1-Pty.	$7.50	$8.00
Conversion to Dial	2-Pty.	6.50	7.00
131 Stations	Res.-1-Pty.	4.25	4.50
	2-Pty.	3.50	3.50
	4-Pty.	3.00	3.25

Effective May 22, 1956

Exchange		Old Rate	New Rate
Sterling City, Tex.	Bus.-1-Pty.	7.00	8.00
Conversion to Dial	Res.-1-Pty.	4.00	4.75
291 Stations	2-Pty.	3.25	3.75

Effectve June 1, 1956

Exchange		Old Rate	New Rate
Groom, Tex.	Bus.-1-Pty.	6.25	7.50
Dial	2-Pty.	5.00	6.00
228 Stations	Res.-1-Pty.	3.75	4.25
	2-Pty.	3.25	3.75
	4-Pty.	—	3.50

Finland Telephone Executive Visits Union Tel. Co.

THE UNION Telephone Co., Owosso, Mich., was host for five days last month to a distinguished colleague in the telephone industry from Finland. Martti Y. Harva, general manager of the Municipal Telephone Company of the city of Turku.

Under the guidance of William J. Hamm, general manager, Mr. Harva observed operations of the general office, accounting, commercial, plant and traffic departments, and also devoted some time to inspecting the new Owosso Automatic Office with R. D. Trezise, Owosso district manager, and T. V. Stein, equipment supervisor. A visit was also made to the company's automatic (dial) office in Ovid.

In the United States since July, 1955, Mr. Harva is a graduate student of electrical engineering in the field of communications at the University of Michigan on a U. S. Government Scholarship for one academic year. His travel is financed by Fulbright

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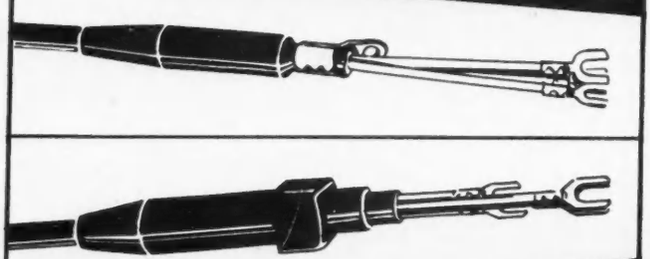

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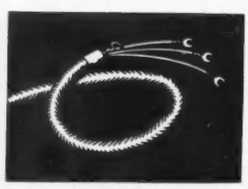

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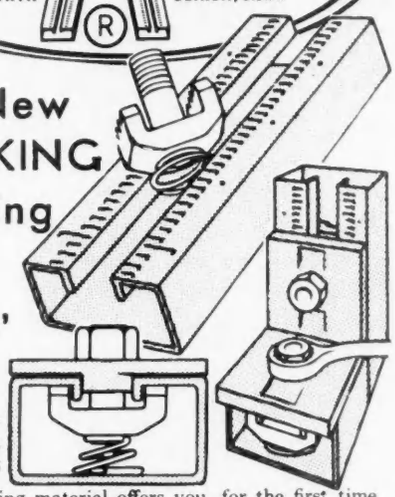

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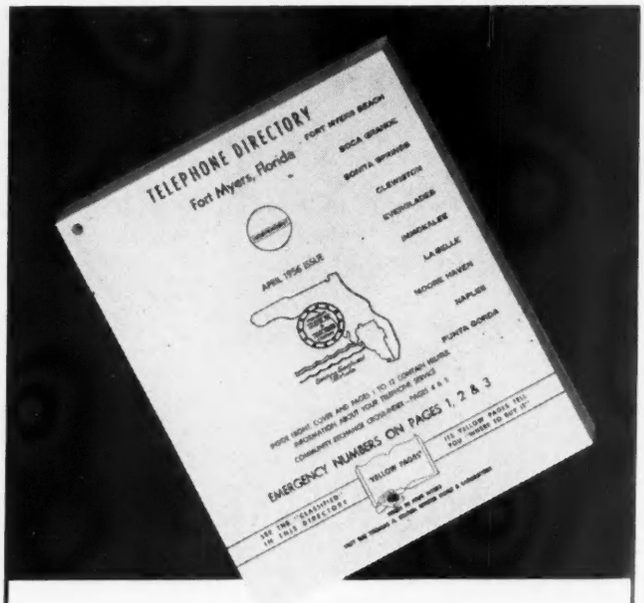

A directory for the
Inter-County Telephone & Telegraph Company
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funds. His stay in America is financed by funds based upon Finland's debt payments to the United States following World War I. While here he is endeavoring to learn as much as he can about the American telephone system.

After finishing his studies, he will be joined by his wife, who is an architect in Turku, for a summer tour of the United States and of Mexico. Handsome, relaxed and personable, with an excellent command of English, Mr. Harva at age 35 manages one of Finland's 800 privately owned Independent telephone companies in the second largest city of Finland, an industrial port on the southwestern Finnish coast. It has a population of 120,000 and supports two universities and several lesser schools.

In 1949 Mr. Harva graduated from the Finland Institute of Technology, with telephone engineering as his major. His studies had been postponed because of the war, in which he served as a signal officer with combat troops. During most of the war he was with the Finnish Army in the Russian Karelia, on the other side of the Finnish border.

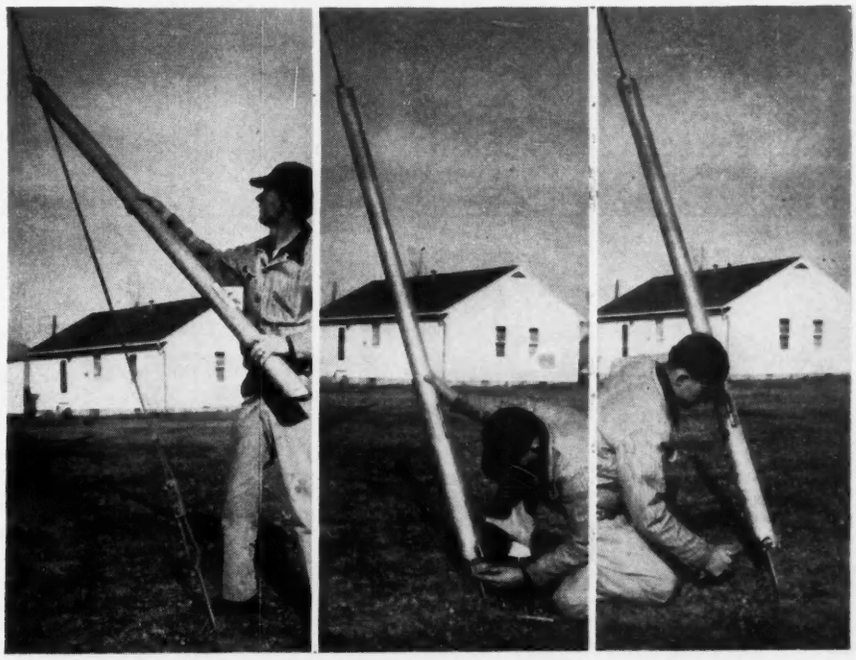
Turku is an important port because it can be kept open all the year and it is situated in the middle of a fertile agricultural area. Although it is a modern, industrial city, it also is the oldest town in Finland, where the first Finns were baptised into the Christian faith in the year 1155. The old castle and cathedral still are witnesses to the early history of Turku. The only parking problem in Turku is that of the motor boats on the river Sura.

The telephone business in Finland is in one sense quite different from the United States industry. It is run by 800 independent companies, every one working on its local or regional basis, with a government or post office owned countrywide toll system. The latter connects the regional networks with each other. The Finnish Post Office also operates local traffic in some exceptional cases, and also in sparsely populated Lapland and close to the Russian border. There are only three municipal systems like that of Turku.

There are 450,000 telephones in Finland for a population of 4 million persons, and of these 63% are dial telephones. The history of the telephone in Finland begins in 1882

Tighten only 1 easy-to-reach bolt to install the CHANCE MONO-BOLT GUY GUARD

When a groundman installs a Chance Mono-Bolt Guy Guard, he has only three things to do:



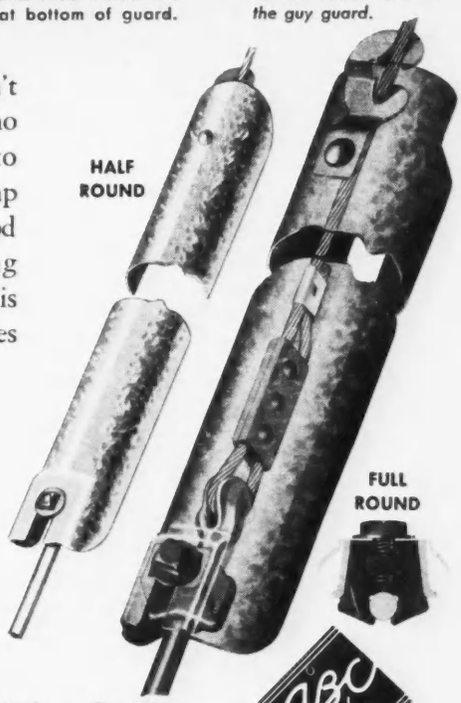
1 Slip the flanged hook over the guy wire.

2 Place clamp on anchor rod and slide it into the slot at bottom of guard.

3 Tighten this one bolt at the *lower end of the guy guard.*

It's that easy—your men don't have to be extra tall—there's no stretching for high bolts to tighten . . . the Mono-Bolt clamp securely grips the anchor rod with a firm 3-point gripping action . . . only a single wrench is needed. Easy installation makes for proper installation.

Heavy gauge steel guard is hot galvanized for long life and high visibility.



Mono-Bolt Guy Guard comes in half or full round construction, in 7 and 8 foot lengths. Fits any size rod from ½" to 1¼".

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when a central office was founded in the three largest towns: Helsinki, Turku and Tampere. The Turku Telephone Company now has 16,000 stations, all of them dial telephones.

The Association of the Private Telephone Companies in Finland is the counterpart of the U. S. Independent Telephone Association. Mr. Harva has been active on various committees in this Association.

Dr. L. E. Lighton Retires; Grimes Named Successor

C. F. NORBERG, president of The Electric Storage Battery Co., recently announced that Dr. L. E. Lighton, vice-president and director of research has retired after a distinguished career of more than 35 years with the company.

At the same time Mr. Norberg announced that Dr. Lighton's position as director of research would be filled by Captain Clifton G. Grimes, U.S.N. (Ret.), who had just retired as Deputy Chief of Naval Research.

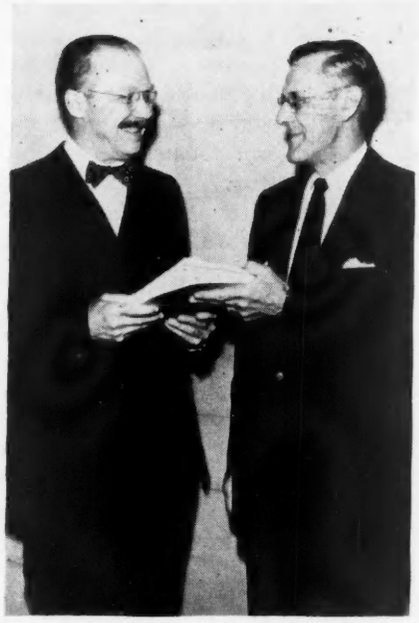
Dr. Lighton, a native of Williamsport, Pa., already was a decorated veteran of World War I when he graduated from Bucknell University as a mechanical engineer in 1920. Three months later he took a job with Exide as a sales engineer in the firm's Detroit branch. After 15 years in sales he was transferred to engineering and was made assistant manager of that department in January 1940, becoming manager ten months later.

In 1945 Dr. Lighton was elected vice president in charge of engineering, and early last year he was appointed director of research.

Captain Grimes, who has succeeded Dr. Lighton as director of research, is an electrochemist holding graduate degrees from Columbia and Pittsburgh universities. A native of Zearing, Ia., he graduated from the U. S. Naval Academy in 1925 and subsequently attended the Navy's Post-graduate School.

After serving as an engineer officer in destroyers and battleships, Captain Grimes spent the period from 1935 to 1938 in design and interior communications in the Bureau of Ships. He commanded the USS Welles from 1938 to 1940 and for the ensuing five years directed interior communications and fire control in the Bureau of Engineering.

In 1945 he went to the Pacific as technical intelligence officer on the staff of the commander-in-chief, subsequently becoming chief of the U. S.



AND NOW TO GO FISHING:—DR. L. E. LIGHTON (left), retiring vice president and director of research of The Electric Storage Battery Co., turns over his project file to CAPTAIN CLIFTON G. GRIMES, who succeeds him as director of research. Dr. Lighton, an ardent angler, plans to fish his favorite lakes and streams and catch up on his reading. A camera enthusiast, he also plans to build up his collection of three-dimensional color slides.

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Naval Technical Mission in Japan. From 1946 to 1948 he was on the staff of Commander Battleships-Cruisers, Pacific Fleet. From that post he went to the Naval Engineering Experimental Station as deputy and director of laboratories and in 1950 became planning officer at the New York Naval Shipyard. He was appointed deputy chief of Naval Research in Washington in 1951.

Captain Grimes is a member of the Society of Naval Engineers, Acoustical Society, Physical Society, Society of Electrical Engineers, and Society of Naval Architects and Marine Engineers. His published writings include authoritative works on such technical subjects as electric arcs and noise and vibration. He was awarded the Legion of Merit in 1945.

Stahl Metal Products Issues New Catalog

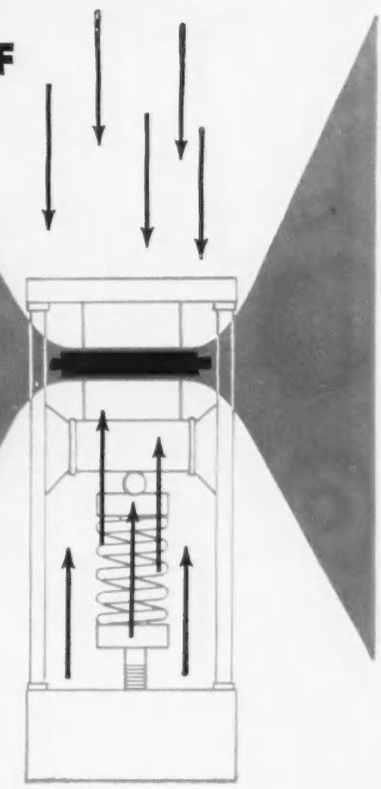
A NEW "complete line" catalog has been issued by Stahl Metal Products, Inc., 3490 W. 140th St., Dept. TE&M, Cleveland, Ohio, presenting Stahl service bodies, line bodies, crew carrier bodies and all equipment and parts. "Fold-in" pages throughout the book contain blue-prints complete with all specifications.

WILLIAM J. CANAVAN has been named manager of the Extrusion Materials Division, Bakelite Co. In this new appointment, Mr. Canavan will be responsible for the sale of the various plastics produced by Bakelite Co. to a wide variety of manufacturers, including wire and cable, pipe and related fields. A graduate of Stevens Institute of Technology, Mr. Canavan joined Bakelite Company in 1944.

1500 pounds

MINIMUM COMPRESSION RESISTANCE OF

ALPHADUCT DROP WIRE



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Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

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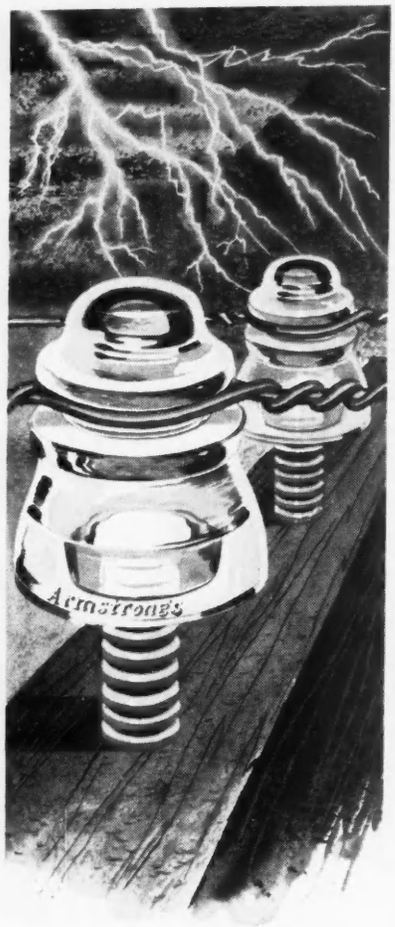

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Stromberg-Carlson Announces Two Sales Appointments

EMMETT L. SHANKS, until recently Stromberg-Carlson sales representative in Pennsylvania, New Jersey and Maryland, has been appointed

E. L. SHANKS

a sales engineer in the Rochester Branch of Stromberg-Carlson, a division of General Dynamics Corp. Thomas H. Holmes, former installation foreman, will take over Mr. Shanks' territory as telephone sales representative.

Mr. Shanks has been a telephone sales representative for Stromberg-Carlson for 16 years, first in Nebraska, Colorado and Northern Kansas, and, since 1947, in the Pennsylvania territory. The son of a telephone exchange manager, his first job was in his home exchange at Canton, Mo.

During his service in Pennsylvania

THOMAS H. HOLMES

Teleprinter
COMMUNICATION

Reliable
LOW-COST
2-Way
Comtel®
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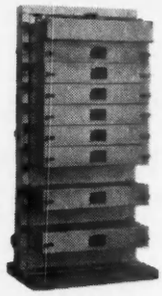

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For High and Low Speed Telegraph Communication

Provides 14 frequency shift telegraph channels in the voice band from 765 to 2975 cps. All essential controls are provided together with an internal 60 MA loop supply for the operation of teleprinters. Equipment is available as a dual transmitter, dual receiver, or transceiver for either simplex, half-duplex, or full-duplex operation. Equipment may be applied to telephone lines, or VHF and Microwave circuits for transmission.

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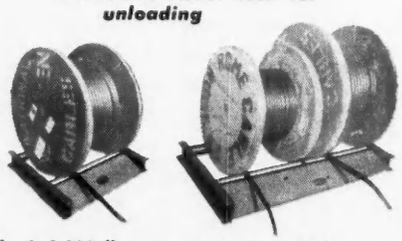

Style A 2,000 lbs. cap. for reels up to 28 in. wide. 37.50 f. o. b. Cincinnati.

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the first XY Dial exchange in this country was installed by one of his customers—the Kittanning Telephone Co—at Worthington, Pa. Over the past few years he has seen some of the largest installations of the Stromberg-Carlson dial system installed in other Pennsylvania locations.

Mr. Holmes was an installer for the Albany Division of Western Electric Co. before joining Stromberg-Carlson in 1951. A short time later he was made an installation foreman, and under his direction such large exchanges as Kennewick, Washington, Port St. Joe, Florida, and Brandenburg, Ky., were cut into service.

In their new positions, both Mr. Shanks and Mr. Holmes will report to J. S. Ottalagana, manager of the Rochester Branch.

C & D Batteries, Inc Celebrates 50th Anniversary

THE WEEK of June 18 through 22 held special significance for C & D Batteries, Inc., Conshohocken, Pa., as the firm celebrated its 50th anniversary.

It was fifty years ago that two Philadelphia youths, Frank S. Carlile and Leon A. Doughty, decided to "throw in together." Forming "Carlile & Doughty, Electrical Contractors," they were kept busy electrifying Philadelphia's homes, stores, and apartment houses at the turn of the century.

Carlile and Doughty have been close friends and business associates since 1905. Doughty is president of the firm; Carlile, vice-president and treasurer. Both men are still active in the day-to-day affairs of the firm which bears their initials.

Over the years, C & D has pioneered in a number of significant battery "firsts." The story is told in an attractive brochure, "Highlights of Fifty Years," put out by the company to mark the occasion. The booklet relates such incidents as the time, while still students, with the help of printed business cards Carlile and Doughty took the bid for converting Central Manual Training High School from gaslight to electricity. The brochure goes on to pace the growth of the company up to the present time.

In addition to the anniversary brochure, the company made up attractive bronze lapel miniatures of its Fiftieth Anniversary medallion for all employes.

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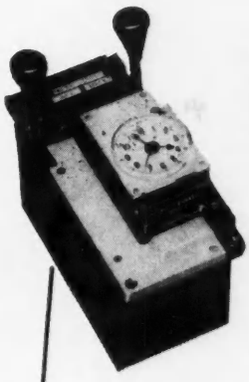
TIMED TO THE SECOND
Automatically



This is the ultimate in modern, dependable and accurate computing of all toll calls TIMED TO THE SECOND. And what's more it's all done *automatically*—no need for operators to do it manually.

Just a flick of a lever, and Calculagraph computes, prints and records ELAPSED time of toll calls, thus eliminating human errors and allowing every operator to handle more calls—and more calls mean more dollars to you.

For time-saving operation, for dependable accuracy, for greater toll-call volume, install Calculagraphs on your switchboard. Investigate this model 33 shown here (others available according to need) and see for yourself what CALCULAGRAPH can do for you.
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931 Photograph courtesy Lincoln (Neb.) Telephone and Telegraph Co. and Automatic Electric Sales Corp.

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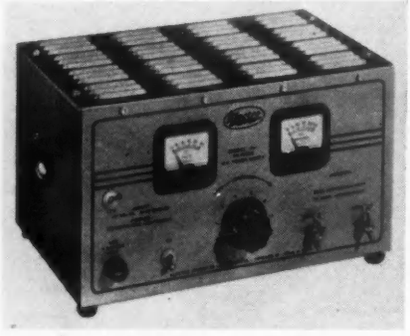
HARRISON, N. J.
THE STANDARD OF ACCURACY SINCE 1892

NEW PRODUCTS' SHOWCASE

Power Supply For Mobile Equipment

A NEW, inexpensive 6/12 volt DC power supply less than half a cubic foot in size operating all LPI, low power input, 10 watt mobile communications equipment has been announced by Electro Products Laboratories, Chicago.

The set, especially designed to service mobile communications receivers of the kind used in taxis, police cars, fire trucks, Red Cross and Civil



New Power Supply

Defense vehicles, eliminates the inconveniences of recharging, acid spillage and deterioration of batteries.

Called the Model "H," the power supply has a dual range of six and 12 volts DC output from an AC line source. It provides excellent regulation to handle instantaneous current requirements from standby to transmission, the manufacturer claims.

The versatility of the new service instrument is demonstrated by its facility to deliver six volts to 20 amperes or 12 volts to 10 amperes with voltage step-control . . . instantaneous current available to 30 amperes to meet test transmission requirements. Maximum AC output ripple of less than five percent at maximum load, claimed more than ample for testing purposes. Special features include a 6/12 volt selection switch, voltmeter, ammeter, bridge-type rectifiers and voltage control step-switch.

For complete data on the Model "H," write to Richard C. Crossley, Vice-President, Electro Products Laboratories, 4500 N. Ravenswood Ave., (Dept. TEM), Chicago 40, Ill., or *Check New Product* 963.

Rod Grapple

THE RECENTLY redesigned Cope Rod Grapple is fast becoming one of the most effective tools in the installation of underground cable equipment. It is especially useful where long lines of conduit are to be rodded.

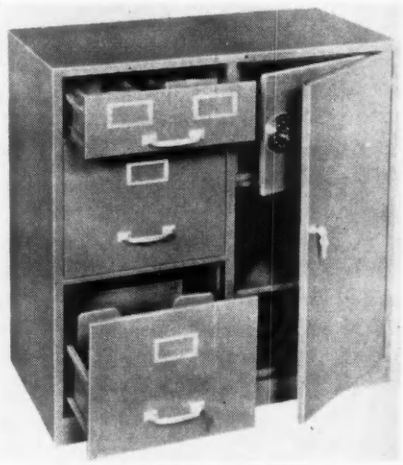
Each pair of Rod Grapples weighs 2 lbs. and will permit rodding from both ends of the conduit. The four hooks on the one tool and the two loops on the other engage with positive action, providing a sure connection where they meet.

Manufacturer of the Rod Grapple is T. J. Cope, Inc., Collegeville, Pa., producers of a complete line of underground cable installation equipment including the Pneumatic Fishline, a powerful airgun which makes it possible to fish underground conduits in a matter of minutes. — *Check New Product* 964.

New Combination Cabinet

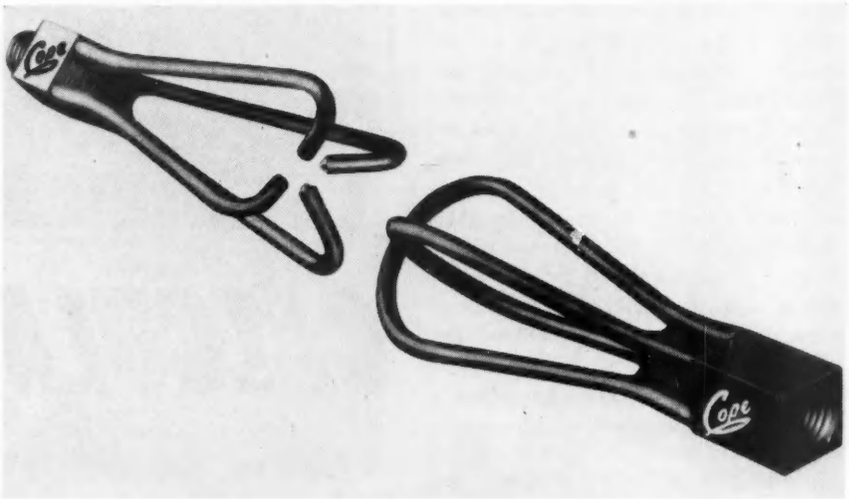
PRECISION EQUIPMENT CO. has announced production of an all-in-one combination cabinet which has been designed to serve a great variety of filing and storage functions.

This cabinet features a "Hidden Vault" to protect valuables and keep private papers private. The vault is doubly protected by a combination lock and by the outside door with its built-in flat-key lock. Two letter-size



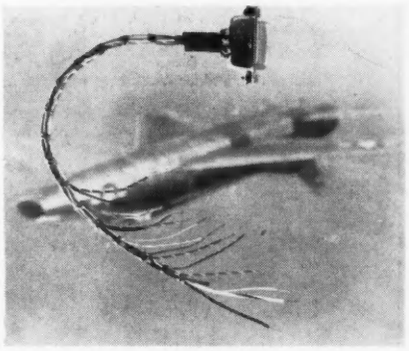
New Combination Cabinet

file drawers each glide noiselessly on ball-bearing rollers and are fitted with spring compressor follower blocks. A card drawer can be used for cancelled checks or for 4x6 or 3x5 cards (3200 capacity). The convenient storage compartment, 16¾H -



New Rod Grapple

x 15W x 16"D has an adjustable shelf and built-in lock with two keys . . . perfect for stationery and other office supplies. The "Hidden Vault" with its combination lock is 11" x 15" x 14" and is located within the storage compartment. The overall size of the entire combination cabinet is 32½H x 30½W x 17"D. Rigidly built of heavy-gauge furniture steel and finished in a beautiful silver-grey baked enamel, this efficient unit will make a handsome addition to any office. — For complete data. *Check New Product* 965.



Stranded Hook-Up Wire

EXTRUDED Teflon coated wire for high temperature service is being initially produced in a stranded hook-up wire, under Hitemp's trade name of "Temprex". Coated with a smooth Teflon sheath, the wire is impervious to all known commercial solvents. Insulation remains unaffected by weathering, ageing, fungus or moisture. Ambient temperatures from -90°C. to plus 250°C. will not change electrical or physical characteristics.

A typical example of one of the many uses of Temprex wire is found in a 15 conductor harness (above), which is used in an aircraft unit.

Available in 14 standard colors, and enumerable combinations of 1 or 2 color stripes, for use where wire identification is a problem. This wire is being made in a wide range of sizes from 26 to 10 AWG inclusive. The wire as available in production lenghts. MIL-W-16878A and MIL.

For additional information *Check New Product* 966.

New Pliers

MATHIAS KLEIN & SONS now offers an improved spring plier utilizing a coil spring just below the hinge. This spring keeps the pliers open at all times. It has the advantage of being practically indestructible and is guaranteed for the life of the pliers. Because of its position, it leaves the inside of the handle area free from any obstruction. This permits any spring plier to be furnished with Klein Custom Dipped Plastic Handles.

For complete data *Check New Product* 967.

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THE BUYERS' GUIDE

ADVERTISING, Directories — *General Telephone Directory Co., 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias, 7200 McCormick Rd., Chicago 45, Ill.*—[ADV. 3]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 5]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard. — *The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 6)]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 8]

FURNACES — **For quickly and economically melting lead and paraffin** — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 9]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 10]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.* — [ADV. 11]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 12]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 26, Minn.* —[ADV. 13]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23. Pineville, La.*—[ADV. 14]

POLES, Southern Yellow Pine — *Taylor Colquitt Company. 217 E. Main St., Spartanburgh, S. C.*—[ADV. 15]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 16]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 17]

REBUILT TELEPHONES & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 18]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 19]

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 20]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket. R. I.*—[ADV. 21]

WIRE, Telephone, for all inside and outside uses — *Whitney Blake Co., New Haven, Conn.*—[ADV. 22]

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CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. steady work, good pay. Henkels & McCoy, 1211 Kenmore Avenue, Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

HELP WANTED
Accountant with thorough knowledge of Class A accounting. Company operates 30,000 telephones with general office located 30 miles west of Minneapolis. Address inquiry to Pioneer Telephone Company, Waconia, Minnesota.

HELP WANTED
MANAGER FOR REA TELEPHONE COOPERATIVE located in Southeast Georgia. Must have administrative ability to develop and maintain efficient operation. Experience in public relations and organization desired. Permanent position carrying substantial opportunity for qualified person. Replies confidential. Write: Walter Harrison, President, Planters Rural Telephone Cooperative, Inc., Millen, Ga.

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New Federal 60 Line CSX Step by Step Dial Unit Complete. This equipment in original packing case and has never been used. Can be shipped immediately. Price $4,950.-00. Reply Box 9026 Telephone Engineer Publishing Corporation, 7720 N. Sheridan Road, Chicago 26, Illinois.

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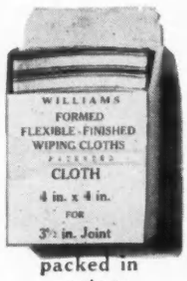

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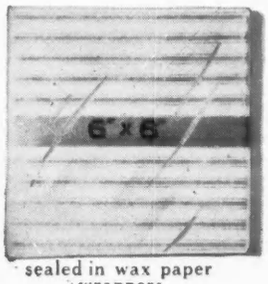

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Don Hoffman Joins Superior Cable Corp.

DON W. HOFFMAN has joined Superior Cable Corp., Hickory, N. C., as industrial sales manager. He will be responsible for sales to manufacturing plants and railroads and will assist the sales operation in the telephone industry.

His wide experience in the electrical field includes the use of wire and cable. He served four years in the U. S. Army Ordnance Department, and later owned an electrical contracting business. In 1948, Mr. Hoffman joined the Westinghouse Electrical Supply Co. as a salesman handling apparatus and supplies sales, and from this position, he came to Superior Cable Corp.

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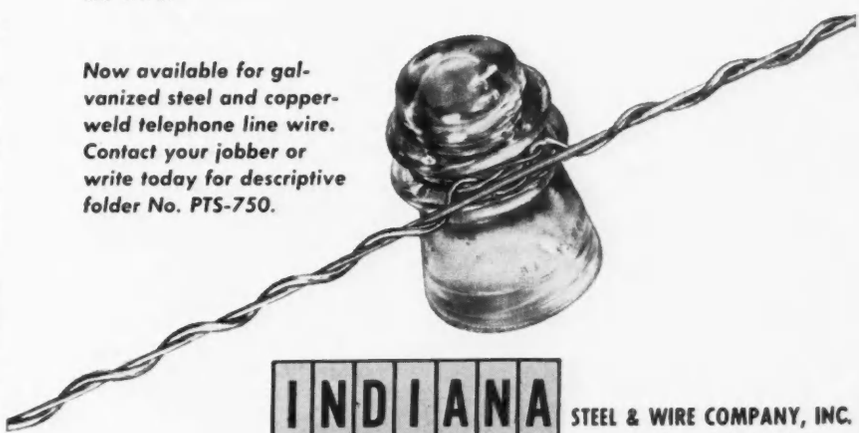
Here's a new — radically new — time and labor saving method of "tying-in" telephone line wire. The tie splint can be tied to the insulator BEFORE the insulator is mounted on the pole.

Crapo Pre-Tied Splints completely revise older methods of tying. The splint, simplified tie and insulator can be preassembled on a "production line" basis in the shop or at the job site. This saves time, cuts tying costs and minimizes the chance of making loose ties.

Crapo Pre-Tied Splints protect the line wire against wear and abrasion because there is no contact between line wire and insulator and line wire and tie wire. The line wire can be removed, re-sagged and replaced without disturbing the tie wire.

Now available for galvanized steel and copper-weld telephone line wire. Contact your jobber or write today for descriptive folder No. PTS-750.



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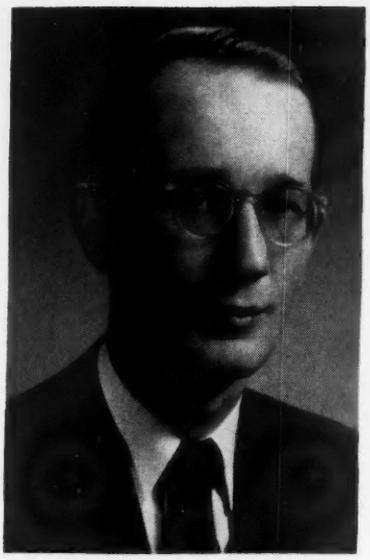
Stromberg-Carlson Names Morison To Editorial Post

GORDON C. MORISON, former copy editor at *The Democrat and Chronicle*, morning newspaper in Rochester, N. Y., has joined the



GORDON C. MORISON

Stromberg-Carlson public relations staff as editor of "The Speaker," employes' magazine, it has been announced by Stanley H. Manson, director of public relations.

In this position, Morison succeeds Kenneth G. Knox, who is transferring to the industrial relations department.

Morison is a native of Sayre, Pa. He is a graduate of Syracuse University, where he received a bachelor's degree in journalism and economics, and of Duke University, which awarded him a master's degree in economics. He is a member of Sigma Delta Chi, national journalistic fraternity.

Morison had been on the copy editing staff of *The Democrat and Chronicle* for about four years. Previously he also had worked for the *Sayre Evening Times* as a reporter.

Truck & Trailer Booklet

A NEW 1956-57 Truck and Trailer Size and Weight Restrictions booklet, a handy pocket-size compilation of the road laws of all 48 states and the District of Columbia, now is available to truck owners and operators.

The booklet, compiled by the FWD Research Department, may be obtained free of charge by common and private carriers.

To obtain your free copy, write Readers' Service Department, TE&M 7720 N. Sheridan Rd., Chicago 26, Ill.

STROMBERG-CARLSON

Transmitter

A DIVISION OF GENERAL DYNAMICS CORPORATION

VOLUME 5, NUMBER 4 • JULY, 1956

Map of exchange area—Farmers Mutual Telephone Co., Lynden, Wash.

Northwest corner solidly XY Dial as

Lynden, Wash., completes program

As far northwest as you can go — where the Pacific laps both Canada and the United States in the same wave — lies the domain of Milton Larson and the Farmers Mutual Telephone Company. With the conversion of Lynden, the largest exchange and tandem center, as well as headquarters for the operation, their 10-exchange XY Dial program is now complete.

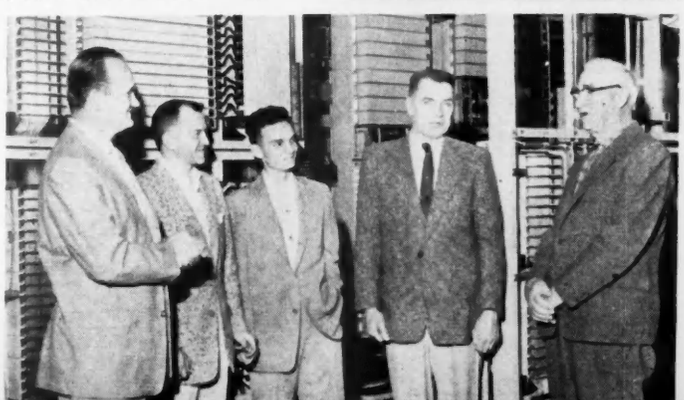
The Farmers Mutual did all their own construction, with Mr. Oscar Olin, plant superintendent, and Mr. Jess Van de Mark, construction superintendent, carrying the chief responsibility. Bill Bailey, now Stromberg-Carlson sales representative in Idaho, Montana and Utah, was the central office equipment supervisor who worked with the Stromberg-Carlson installers throughout the program and until the last dial conversion was proved in.

This company has the third largest exchange area in Washington. All exchanges are connected for free service, with long-distance connections to Bellingham. The system is arranged with 2-5 numbering and can go to nationwide intertoll dialing as soon as the distant ends of the trunks are converted.

Congratulations from J. P. Galligan (left) to Mrs. Gertrude Burgraff, secretary and commercial manager and Mr. C. R. Behme, director, Farmers Mutual.

Last link in chain of exchanges, as manager Milton Larson throws main switch at Lynden. A close observer is J. P. Galligan, Stromberg-Carlson manager for West Coast branch. C. E. Fogg, Stromberg-Carlson sales representative, is at left.

At completion of Lynden cutover, left to right, R. T. Ferguson, Stromberg-Carlson sales engineer; S. W. Bailey, Farmers Mutual equipment supervisor; Ralph Smith, Stromberg-Carlson installer; M. D. Larson, manager of Farmers Mutual Telephone Co.; and C. R. Behme.



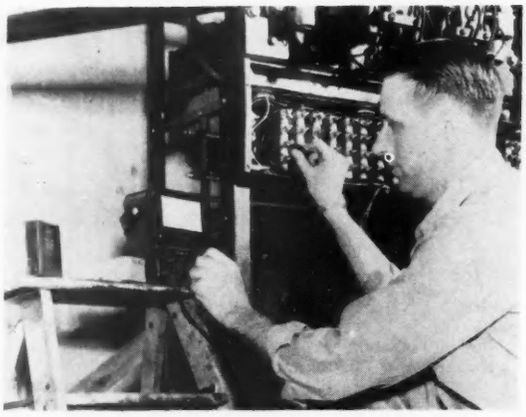
The Pagemaster selective radio paging system receiver is small and compact, weighing just a few ounces. It has no wires or other external attachments. In use it is most often carried in coat or shirt pocket.

PAGEMASTER®

Selective Personal Paging . . . by

Thousands of man-hours of research and development culminated recently in the installation of a *Pagemaster*® selective radio paging system — the first to be installed anywhere in the nation — at Doctors Hospital in Seattle, Wash.

Dr. Robert F. Brown, hospital director, neatly summed up the effectiveness of *Pagemaster* when he said, "The amount of time it has saved is too great to estimate." Dr. Brown observed that "circulating personnel" are reached quietly as well as rapidly by means of the soft, pleasant tone signal emitted by the pocket-size receivers.



Plant superintendent Frank Fischer keeps his Pagemaster receiver with him, wherever he may be. Here he has placed it on a ladder while working in the elevator penthouse.

The Greatest of Care

Development and testing of *Pagemaster* have demanded the full-time services of four engineers since the beginning of this year. The precision components receive extreme care and comprehensive testing and re-testing before final assembly, when further tests are applied.

A good example of this process is the decoder assembly. This is a vital component of the equipment — the part that makes the system selective. Unique in that it is a multi-reed de-

Dr. Robert F. Brown, director of Doctors Hospital in Seattle, where the first Pagemaster system in the U. S. is in operation, shows the size of a Pagemaster receiver by comparing it to a pack of cigarettes. Miss Betty Hamshaw, chief telephone operator, is broadcasting a call.

A doctor shows his patient how he shuts off the signal tone on his pocket receiver.

GEMASTER® is a trademark of Stromberg-Carlson, a division of General namics Corporation. Reg. U. S. Pat. Off.

Laura Johnson solders components for Pagemaster signaling equipment. The work is exacting and requires extreme care.

...by Radio

vice, the decoder is assembled and tested in a special room with air conditioning and filtered air. Absolute cleanliness is essential.

In order to achieve the stability required in the decoder, engineers put it through several frequency adjustments, with an overnight wait between adjustments. After it has been stabilized, the unit is sealed.

Equal care is exercised in the production of the receiver unit. With so much electronics in such a small package, extreme precision is the order of the day. Tubes are individually tested and selected. Full inspection is required before assembly. Then the units undergo further testing in a specially screened room, where actual operating conditions are simulated to check sensitivity and triggering. Even after the covers are sealed, further tests are made as a final assurance.

How It Works

A *Pagemaster* system consists of an encoder-transmitter and a number of receivers. Maximum in any of several systems may be 64, 100, or 3300, depending on the type of system.

In operation the system normally follows this sequence: The switchboard operator receives a call for an individual who is not at his desk. Knowing his pre-arranged code signal, she sets the numbered knobs on the transmitting unit installed next to the switchboard. She then operates a toggle switch.

The signal thus broadcast is received *only* by the receiving unit tuned to that frequency. The unit emits its pleasant tone. The user can then pick up the nearest 'phone. The entire operation takes only a few seconds.

Many Applications

While *Pagemaster* is particularly well-suited for hospital use, it has many other applications. A system has been installed in a California oil refinery. Selective radio paging via *Pagemaster* is eminently practical in oil fields, on construction projects, in industrial plants, volunteer fire departments, large stores and in other organizations requiring fast, efficient intercommunications. *Pagemaster* is a supplement to telephone systems and should interest many independent company subscribers.

Hands and Minds

The skills and talents of a good many Stromberg-Carlson people have been combined to develop, produce and market the *Pagemaster* system. In the engineering group are Ed Hineline, Koho Ozone, John Young and Elwood Jackson. Sales are handled by Ed Sears, Leo Granger and Roy Wunsch. Frank Verni is field survey engineer and James Loughlin is handling production.

Pagemaster engineers Koho Ozone (left) and Ed Hineline discuss ways of improving the design of the receiver.

Stan Sherman tests Pagemaster parts. From beginning to end the production process features careful and comprehensive testing and inspection of all components.

Equipped with Pagemaster receivers, key personnel in an industrial plant can always be reached in seconds.

Madge Sidney, housekeeping director at Doctors Hospital, demonstrates to a supervisor the belt she designed to carry the receiver unit. Employees without pockets use the belt.

Roy "Bud" Price, manager of the Paul Bunyan Telephone Coop., and sons are dwarfed by the statue of Paul Bunyan and his Blue Ox on shore of Lake Bemidji.

When Winter comes, can Spring e

Safari to the Land o*he*

The original plans didn't include being snowbound in April in Northern Minnesota. Rex Brown, of the Polar Rural Telephone Mutual Aid Corporation had lunch with us at the airport. He must have known snow was coming, as he left Fargo early to get back to Grafton, N. Dakota, and planning for the construction of his several new XY Dial exchanges. My bus finally came, and somehow or other got through; there was certainly no lack of conversation in the pleasant but overburdened hotel in Bemidji — mostly about weather, canceled plans and a hope that there was plenty of food on hand. Roy Price of the Paul Bunyan Rural Telephone Coop. wasn't quite so lucky. He was stuck until after midnight at one of his outlying exchanges, which has since been converted to XY Dial. The next morning we did get together for a pleasant visit, and his children built a snowman for me.

Sauk Center, Minnesota, is the "Main St." of Sinclair Lewis, a principal junction point, with one road leading to Osakis and Brandon in the heart of the lake country. Mr. and Mrs. Del Ludenia of the Osakis Telephone Company told me that during the vacation season you can't buy a room for any price. I was shown the company truck out on the ice — part of a traditional scheme for raising money for youth recreational activities. An electrical timing device will indicate the exact day, hour and minute when the melting ice lets the truck fall through. The one guessing closest wins a prize — the rest of the contributed fund is for the children.

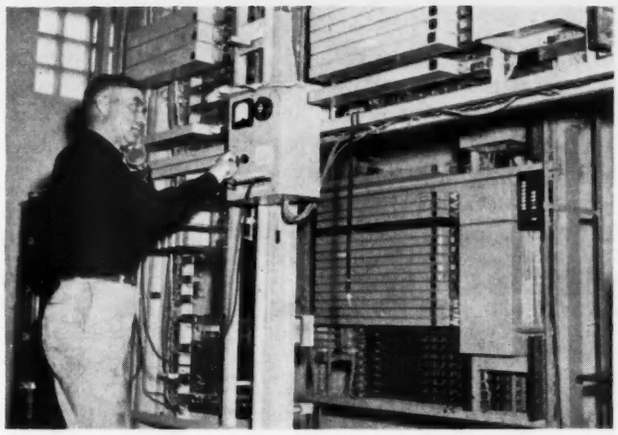
Del Ludenia — former electrical contractor — engineered his own XY Dial office; has never had a case of trouble. His entire outside plant is in plastic cable, and on more than one occasion has proved itself in

Pheasant was pleasant! Ethel Ludenia gave us a family-style welcome to Osakis.

Mrs. William Balder, wife of founder of Osakis Telephone Company, is still actively interested.

The Osakis Telephone Co. truck is out on the ice for a purpose! Del Ludenia, company manager, and Vic Burchett of Stromberg-Carlson came down to the lake to check up.

STROMBERG-CARLSON
TRANSMITTER



Orville Jones, manager of Gordonville Telephone Coop. in his Brandon, Minnesota, dial exchange.

Spring far behind?

d of the Sky Blue Waters

severe electrical storms. Ethel Ludenia grew up in the telephone business, which her father, Mr. William Balder, purchased in 1917. She has "retired" as an operator, but her kitchen blackboard still has its use as a special information center.

A well managed and smoothly operating dial office doesn't keep a man tied down all the time. Del doesn't mind this a bit during the hunting and fishing seasons — in fact he recently bought a new and larger freezer with this in mind!

An hour or two away is Brandon, Minnesota, where Orville Jones came up from his native Oklahoma to buy a summer resort, and stayed to manage the Gordonville Telephone Cooperative. This group contains 5 XY Dial offices with about 900 regular subscribers at present and some extra resort business in the summer, easily handled through the flexibility of the dial equipment to seasonal adjustments in service requirements.

"Hap" Jones serves a region which is mostly given over to dairying. With many long rural lines, he and his combinationman Vernon Peterson had their fingers crossed against spring storm damage; the last trouble was caused by severe wind storms just about a year ago.

From Brandon it's a short backtrack to Alexandria. With a little time before the train to St. Paul I visited the Chamber of Commerce and was given a very interesting booklet on the Kensington Runestone found on a nearby farm, which seems rather conclusive proof that Norsemen were in the area in the year 1362 A. D.

It seemed ironic to be on a train going through Minneapolis which I had always wanted to revisit since moving away in 1940, but Wisconsin was next on the schedule and we'll be reporting from there next month.

V. C. Burchett talks things over with Orville Jones in front of Brandon exchange and headquarters building.

Just to prove that the April 7th storm was real, "Bud" Price's children built me a snowman, assisted by Mrs. Price and a neighbor.

This is Sinclair Lewis' "Main Street," chosen by the noted author as typical of American towns — and the type which forms the backbone of the Independent Telephone Industry.

the editor's mail

Electronics

The Tampa *Tribune* recently carried a news release on the delivery of Stromberg-Carlson electronic switching equipment to the Navy. At about the same time the Tampa *Daily Times* ran a feature article pointing out the many applications of electronics to communication already employed by the Peninsular Telephone Company in its burgeoning service area. These include mobile, ship to shore, microwave and electronic secretaries. Plans for the future foresee customer direct long-distance dialing, with electronic recording of toll charge data.

It is not at all surprising that the Peninsular Telephone Company, a recognized leader in progress among Independents, is moving rapidly in the direction of this latest medium of modern communication.

Incidentally, does anyone want to kick up a lot of wind? If so he might be interested in the electronic control equipment which Stromberg-Carlson is providing for the world's largest supersonic wind tunnel. Air velocities up to four and a half times the speed of sound can be generated. To control these mighty gusts, Stromberg-Carlson will provide a digital computer system for automatically controlling the shape of the nozzle by electronic means.

Tragedy Averted

Fred Cartwright, owner of the Noel, Missouri, Telephone Co. helped to avert a near-tragic ending for a gay high school picnic. One of the senior boys, riding a water bicycle, was swept over the dam at St. Clair Lake. Quick thinking and action by Fred and three other men rescued the youth — considerably shaken up, but otherwise little the worse for his hair-raising experience.

Another for Palestine

Last year the Palestine Telephone Company of Palestine, Texas, purchased the Telephone Exchange at Neches, Texas, and immediately ordered an XY Dial system to convert the exchange to dial operation.

Gathered in the Neches Exchange at cutover time are (left to right) James Woody, plant superintendent; Rolla Johnson, president and general manager; Theodore Johnson, installer; and Albert Rucker, district manager — all of the Palestine Telephone Company.

Cutover date was May 25, 1956. The Palestine Telephone Company now has three XY systems. Its Tucker and Mt. Alba exchanges were cut over in 1954.

President and General Manager Rolla Johnson looks forward to continued progress in this growing area of the Lone Star State.

What's for Supper?

We assume it was on a Sunday, and Roeg Cushing, Stromberg-Carlson sales representative for Missouri, was just exploring the possibilities so he could recommend a good fishing spot to his customers. For those interested, Roeg has supplied the following vital statistics:

The fish are wall-eyed pike, caught at Bull Shoals Lake. They weigh in at 13 pounds, 12 pounds, and 8 pounds, respectively.

Operation Mop-Up

You don't have to wear fishermen's waders in Connell, Washington, any more, but residents can easily show you the high-water mark on many buildings after the disastrous early spring flood. For Mr. and Mrs. Harris of the Connell Telephone Company it was a nightmare, as much of their newly-converted XY Dial plant was temporarily put out of service by cable damage.

Restoring the communication facilities was given high priority on the list of emergency measures; with complete cooperation from both within and outside the stricken area, the vital service was soon back in working order.

Then residents set about the less spectacular task of mopping up and cleaning out the mud which covered walls to window height in many sections of the community.

Even the telephone company, first thought of in an emergency, was washed out temporarily by the disastrous flood which hit Connell, Washington. Said one resident forced from his home, "Woof!"

MEET George Elliott and John Garner

It is natural to associate these two men at this time, for each, as section head of a group of engineers, has primary responsibility in the two fields of circuitry and equipment design for Stromberg-Carlson's electronic switchboard.

George Elliott
Switching Systems

George Elliott, on the first of this year, was made Section Head, Telephone Switching Systems. Just prior to this appointment he was engineer in charge of electronic switching development, and had been a circuit design engineer for his first eight years with Stromberg-Carlson.

Mr. Elliott is a native of Lisbon, Ohio, and received his B. S. in Electrical Engineering from Case Institute of Technology with a major in communications. His first employment was as a circuit design engineer for Automatic Electric Company.

From 1943 to 1945 George worked in the Brooklyn Navy Yard, and here met Aileen Fanning — now Mrs. Elliott. On leaving the "Yard" he became assistant chief telephone engineer for the Wilcox Electric Co. of Kansas City.

George and Aileen Elliott have two sons: Robert, 10, and John 8; in the natural course of entering into their children's activities, both have been active in the Cub Scouts: George as committeeman for program and Aileen as a den mother. George also has a real interest in music, having played the violin in his high school and college orchestra.

Professional interests occupy much of his time outside the office. George is a member of A.I.E.E., and was invited to read papers at a recent regional meeting; also Sigma Xi and Eta Kappa Nu. He is a licensed Professional Engineer in New York State, with seven patents on telephone switching circuits.

John E. Garner, at the first of the year, became Section Head, Telephone Equipment Engineering. Previously he had been equipment design supervisor.

Mr. Garner was born in Allentown, Pennsylvania, and after graduation from high school there attended Peddie Preparatory School and the University of Pittsburgh, majoring in electrical engineering. In 1940 he became an installer for the Western Electric Co., helping to construct the New York to Harrisburg coaxial cable. He later became installation foreman for central office and toll equipment in several eastern Pennsylvania towns.

His experience took on an international flavor when employed by the Signal Corps in Hawaii, while serving an enlistment with the U. S. Navy amphibious forces, and while installing dial systems in Havana, Cuba. Just before coming to Stromberg-Carlson, he was the building and equipment engineer for General Telephone Co. of Michigan.

John E. Garner
Equipment Engineering

Jack and Eleanor Garner have recently changed houses. As Jack explains it: "Either 10-year old Patricia and her menagerie of dogs, cats, birds, tropical fish, hamsters, and guinea pigs had to go, or we had to move to the country." Patricia's delighted reaction: "Now I can have a horse too."

On the more serious side Jack is very active in the Brick Presbyterian Church where he is a member of the Service Board; Eleanor is just as serious about her collection of early American antiques.

Camera Catches Customers at Indiana Convention

Mr. Charles W. Thomas of Roachdale, manager of the Thomas Telephone Exchanges, and his father have been talking colored telephones with Ken Jenkins (right) who represents Stromberg-Carlson in southern Indiana.

Closed Circuit. We wonder what Roscoe Pontius, of Rochester, Ind., can be asking Joe Thompson (right) Stromberg-Carlson representative for northern Indiana. It may have to do with XY Dial equipment!

From brush line to 2-5 numbering

Nehalem, Oregon, has XY Dial service for all

Fir trees and fence posts served as pole line for the first makeshift crank-your-own telephone system in 1900 for the settlers along the bay and river in the vicinity of Nehalem, Oregon. As there were no roads worthy of the name in this region then, the telephone — weak and poor as it was — provided the best link between isolated settlers.

The intervening years before 1952 were marked by substantial forward strides as well as crushing setbacks for the telephone company; at this time Mr. John Dillard, with a long background of successful telephone management for the Columbia Utilities Co. and as owner-operator of the Redwood Telephone Company, was brought in as president, manager and service man for the Nehalem Bay area.

The story has been one of positive accomplishment since then. Mr. Dillard's success was recognized by fellow telephone managers when he was named president of the Oregon Independent Telephone Association this year.

Mrs. Dillard is secretary-treasurer of the corporation, Mr. J. D. Clyde Lewis is vice-president. Stockholders and the Board of Directors are all local residents, many of them descendants of the first pioneers in Oregon territory.

The dial system which has been in operation for several months provides every modern feature, including 2-5 numbering for nationwide dialing as soon as it can be extended to the area served by this company.

Mr. and Mrs. John Dillard of Nehalem, Oregon, oversee the last calls placed over combination manual board.

With every modern dial facility now available for their subscribers, Mr. and Mrs. Dillard can consider their present objective as attained.

Telephone Co. Steals Sho

Mr. Cecil Stokes, general commercial manager for the United Telephone Co. of Iowa, created one of the most attractive and colorful exhibits for the recent Home Show held in Newton, Iowa. He is shown here with the many types of telephone instruments and accessories which drew a large number of potential customers to his booth.

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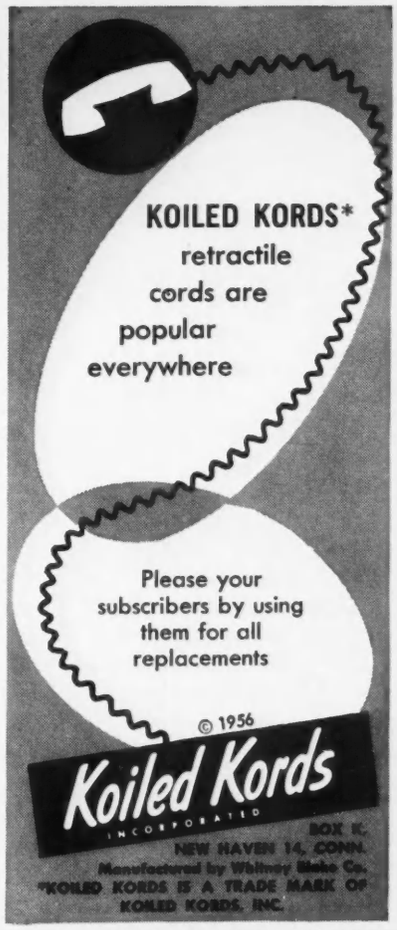
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the BACK of the BOOK

By John G. Reynolds

Tough Job

WE'VE ALWAYS felt that Bell System engineers bat pretty close to .300 in the Telephone Problems League. But the *Illinois Bell Telephone News* tells us there's a baseball fan down in Peoria who's really trying to throw them a curve. If his suggestion should be adopted the engineers will really have a tough pitch to hit.

In the interest of speeding up the game, the Peorian suggests the installation of a telephone immediately behind the mound connected to one in the dugout. The idea, of course, is to prevent those interminable halts while the manager strolls out to discuss the situation with a faltering hurler.

As a charter member of the Ninety-Minute Ball Game Club, we're all for the innovation. But we want to watch the System's engineers come up with a telephone instrument that can dodge so a batted ball won't bounce off it for a fluke hit.

From the Mouths of Babes . . .

DOWN IN Oklahoma, we're willing to wager, there's a manager for Southwestern Bell Tel. who's going over his open house script word for word. Recently he was explaining to a visiting group how the town's residents could call anyone in the country by telephone.

"Could I talk to my grandma in Illinois?" piped up a small boy.

The manager assured him that would be no trick at all.

"But grandma doesn't have a telephone," said the youth.

Directory Revision Due

CAIRO'S complicated, illogical telephone book is due for a streamlining. Prime Minister Nasser's government for the first time has ordered all Egyptians to adopt family names. Egyptian names follow so little logic that they result in the world's most useless telephone directories.

For example:

Moustafa, son of Mohmoud Amine Youssef, is known as Maustafa Amine. Egyptians say this is logical, but can't explain why.

Zaghloul Ali and Mohamed Wagdi are brothers. But at any given moment, Zaghloul Ali may turn out to be Ali Abdel Sayed. To Egyptians, the two names obviously refer to the same man. He just happens to use a different set of his many names as he feels like it .

This system worked well for Egyptians for centuries, but the coming of the telephone has caused complications .

Suppose you want to ring up your friend Mohamed Ahmed. You look for the listing "Ahmed, Mohamed." Under the "A's" you will find 163 Ahmed Mohameds, but no Ahmed, Mohamed. You then realize you have to look under "Mohamed," not "Ahmed."

Back in the "M's" you wade through no less than 40 pages of Mohameds (including two pages of Mohamed Mohameds). You find 159 Mohamed Ahmeds sprawling over two full pages.

You then realize that Mohamed Ahmed is only a small piece of your friend's name. Running down the list, you have to choose from "Mohamed Ahmed Abdel Nabi El Eskandarany," "Mohamed Ahmed Aly Abou Chanab," or "Mohamed Ahmed Farag El Sanhouri," and so on.

You decide to write him a letter instead.

Mother Shipton

THE NEW transatlantic telephone cable was predicted as early as the 17th century. Mother Shipton, author of this prophesy, was popularly known as a witch and pamphlets purporting to be a collection of her predictions appeared frequently in London about 1640.

Among her many visions of the future was this one: "Under water men shall walk, shall ride, shall sleep, shall talk. In the air men shall be seen . . . iron upon the sea shall float as easily as a wooden boat."

We're not quite sure what Mother Shipton had in mind, but Her Majesty's Telegraph Ship *Monarch* might well be considered an iron boat, and the Atlantic cable when completed will be the longest distance man can talk under water to date.

Good Old Days

THERE'S a Cleveland customer, we understand, who wonders if Ohio Bell's practices oughtn't to be rewritten to agree with today's financial facts of life.

Recently he dropped a dime in a pay station to make his call. Through one of those once-in-a-million chances, he didn't get his party but his dime was collected. The operator apologetically took his name and address and assured him he'd be reimbursed by the company. In due time arrived an envelope from Ohio Bell.

Inside was a formal apology and attached to it was a shiny Nickel.

Tongue Twister

IT MUST have been a hard day for Gary, Ind. Traffic people. In that office's paper, *By-the-Wayside*, we read of the operator on the toll board whose tongue twisted a trifle. A subscriber having some difficulty was instructed to "Hang 'O' and dial up, please."

"Am I lucky...there's a pay-phone near!"

"Now, wouldn't you know! A tire to change—just when I've got to look my very best.

Thank goodness there's a pay-phone near by. I'll be able to get a repair truck here in a jiffy. That telephone company is my friend for life!"

Every day, roadside telephones are "lifesavers" for troubled motorists. Smart telephone companies know their 'round the clock service not only earns immeasurable good will, but brings in handsome revenue, too.

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